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ABSTRACT

The construct of "organizational climate" was explicated and various ways of operationalizing it were reviewed. A survey was made of the literature pertinent to the classical-human relations dimension of environmental quality. As a result, it was hypothesized that the appropriateness of the classical and human-relations master plans is moderated by at least 11 contingencies. A measure of the classical-to-human relations climate was developed and validated. Several additional hypotheses were also confirmed: (a) members generally perceive the human-relations atmosphere as more effective than the classical one, although this is much less true of supervisors than of nonsupervisors and was not true at all in some organizations; (b) supervisors tend to describe their systems' climate as more human-relations oriented than do nonsupervisors; (c) the present climate tends to be seen as more effective by supervisors than by nonsupervisors; and (d) climates whose facets are homogeneous or consistent with regard to a classical or human-relations quality are perceived as more effective than heterogeneous climates. The results were interpreted as supporting a contingency model of organizational design. Practical implications are discussed in the final section of the concluding chapter. (A comprehensive bibliography is included.) (Author/AG)

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FINAL REPORT

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ASSESSMENT OF WORK CLIMATES: THE APPROPRIATENESS OF CLASSICAL-MANAGEMENT THEORY AND HUMAN-RELATIONS THEORY UNDER VARIOUS CONTINGENCIES

JOHN A. LANGDALE

New York University

June, 1974

A dissertation in the Department of Psychology submitted to the faculty of the Graduate School of Arts and Science in partial fulfillment of the requirements for the degree of Doctor of Philosophy at New York University.

Approved: Raymond A. Katzell
Raymond A. Katzell

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The construct of "organizational climate" was explicated and various ways of operationalizing it were reviewed. A survey was made of the literature pertinent to the classical-human relations dimension of environmental quality. As a result, it was hypothesized that the appropriateness of the classical and human-relations master plans is moderated by at least 11 contingencies; e.g., the organization's goals, its tasks, its size, its members' personalities, and the stress factors to which it is subjected. A measure of the classical-to-human relations climate was developed and validated. The research carried out, using this instrument, supported a contingency theory of organizational design. Other hypotheses were also tested. These results were interpreted theoretically and their practical implications were discussed. A comprehensive bibliography is included.

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S U M M A R Y

ASSESSMENT OF WORK CLIMATES:
THE APPROPRIATENESS OF CLASSICAL-MANAGEMENT THEORY AND
HUMAN-RELATIONS THEORY UNDER VARIOUS CONTINGENCIES

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Presently, theorists and administrators alike face the dilemma of whether to design social systems around a human-relations or classical-management master plan.

The construct of "organizational climate" was explicated and various methods of operationalizing it were evaluated. Then, the classical-to-human relations dimension of environmental quality was focused upon as one possible basis for the comparative analysis of total systems. After a survey of the pertinent literature, it was postulated that neither the classical nor the human-relations paradigm is appropriate across all organizational settings. More precisely, it was hypothesized that the appropriateness of these two master plans is moderated by at least 11 contingencies, e.g., the organization's goals, its tasks, its size, its member' personalities, and the stress factors to which it is subjected.

A measure of classical-to-human relations climate was developed and validated using the data supplied by 10 supervisors, 10 nonsupervisors, and one expert informant from each of 17 different work organizations. Through a correlational research design, it was found that these organizations exhibit significantly varying degrees of classical-to-human relations quality depending upon the hypothesized contingen-

cies. Furthermore, the same contingencies moderate members' perceptions of whether a classical or human-relations climate would be more effective in their organizations.

Several additional hypotheses were also confirmed: (a) members generally perceive the human-relations atmosphere as more effective than the classical one, although this is much less true of supervisors than of nonsupervisors and was not true at all in some organizations; (b) supervisors tend to describe their systems' climate as more human-relations oriented than do nonsupervisors; (c) the present climate tends to be seen as more effective by supervisors than by nonsupervisors; and (d) climates whose facets are homogeneous or consistent with regard to a classical or human-relations quality are perceived as more effective than heterogeneous climates.

Theoretically, the results were interpreted as supporting a contingency model of organizational design: the contingencies explain why enduring organizations sustain more classical or more human-relations atmospheres and why members can perceive either atmosphere as more effective. Contrary to the popular belief that the human-relations master plan is unequivocally superior, it was concluded that neither it nor the classical master plan is universally appropriate. Rather, each has its own domain of applicability as a function of identifiable situational factors. The practical implications of this contingency model for designing organizational environments were discussed.

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[1]

> There is a need for concepts that refer to variations in the environment, but no satisfactory systematic approaches exist as yet. This is not only a technical need of the behavioral sciences; it is also a cultural one, for we live in a society that believes in modifying and designing its environment and that is, as a result, preoccupied with ways of thinking and talking about its surroundings [Tagiuri, 1968a, p. 11].

CHAPTER 1

The Emergence and Significance of the Notion of "Organizational Climate"

Today virtually every observer of human nature will readily attest to the powerful influence that environment has on our lives. Perhaps this surge in ecological awareness is precipitated by ever-worsening chemical, biological, and social forms of pollution. But well before popular interest was aroused, the disciplines of psychology, sociology, and philosophy had attempted to probe the relationship between man and his environment.

In the field of psychology, Lewin (1951) concisely postulated "B=f(P,E)," denoting that behavior, to a large extent, is a function of the environment. Further, Litwin (1968) has delineated the central role that environment plays in all three major theories of human behavior: the stimulus-response,

the expectancy-value, and the psychoanalytic theories.[1]

Unfortunately, despite the prominence of environment in behavioral theory, scientists find it intensely difficult to experiment with. The sheer multiplicity of variables involved, their often intangible nature, and their differential effects on people, all create tremendous obstacles for the empiricist. As a result, a marked discrepancy has arisen between the amount of research actually carried out in this area and the amount warranted by psychological theory.

Systematic empirical knowledge and technological advancements, so often provided by science in other areas, are relatively scarce where man's interaction with his environment is concerned. As Skinner noted,

> We could solve our problems quickly enough if we could adjust the growth of the world's population as precisely as we adjust the course of a spaceship, or improve agriculture and industry with some of the confidence with which we accelerate high-energy particles, or move towards a peaceful world with something like the steady progress with which physics has approached absolute zero . . . . But a behavioral technology comparable in power and precision to physical and biological technology is lacking, and those who do not find the very possibility ridiculous are more likely to be frightened by it than reassured. This is how far we are from "understanding human issues" . . . [1971, p. 3].

---

[1] More rigorous psychological theories of environment have been offered by Murray's (1938) classificatory schema, with its distinction between alpha (environment as it 'really' is) and beta presses (perceived environment), Brunswik's (1946) probabilistic functionalism, and Chein's (1954) analysis of the "geo-behavioral" environment.

Like growing children, we find ourselves able to manipulate our environment more and more, yet helpless to control the reciprocal effects it has on us. For the most part, we are unable to make cogent statements or accurate predictions about the outcome of man-environment interaction. More alarming is the widespread environmental decay, psychological discomfort, and even rampant mental illness which testify to our inability to take affirmative action against the adverse psychological conditions enveloping us.

Social Organizations as Environments

Against this ominous backdrop, an encouraging anomaly presents itself. It is in the field of organizational psychology that scientists are studying man's actions, attitudes, and cognitions in an ecological framework.

Like psychological theory in general, organizational theory abounds with environmental references. Ecological preoccupation, as Table 1 serves to illustrate, has escalated since the early part of this century when classical-management theory was most popular. This trend is easily explained. The social organization is becoming widely accepted as an environmental system--a structurally complex and dynamic organism in which the human participant is immersed.

TABLE 1

Classification of Organizational Theories with Attention to the Role of Environmental Concepts

Type of Theory	*Focus*	*Use of Environmental Concepts*	*Possible Integration of Climate Concepts*
CLASSICAL Taylor Gulick and Urwick Fayol	Efficient organization of production through: (a) subdivision of tasks (b) formal structuring to differentiate positions by level and status (c) operations (time and motion study, flow charts, etc.)	Not relevant	*Unlikely integration*—emphasis is on control rather than the analysis of behavior
STRUCTURAL Weber Udy Woodward Lawrence and Lorsch	Interrelationship of environmental forces, technology, organization structure, and performance Hypotheses often tested through comparative studies	Structural-technical demands describe environmental influence, largely through job and role expectations Concepts of morale, group cohesion, group norms used to a limited extent	*Likely integration*—to describe the impact of structural-technical demands on individuals and groups
DECISION SYSTEM Barnard Simon March and Simon Cyert and March	Effective administration, organizational influence on individual decisions, and organizational decision making Emphasis is on choice and decision concepts—rationality is seen as a goal of organizations, but not necessarily a fact	Decision making is influenced by such environmental features as: (a) perceived consequences of alternatives (b) values attached to alternatives (c) influence and salience of group membership	*Likely integration*—of particular climate dimensions relevant to decision making (uncertainty, risk acceptance, etc.)
SOCIAL SYSTEM Homans Roethlisberger and Dickson Whyte Likert Schein	Processes of group interaction as related to participation, communication, and motivation Leadership style is a critical determinant of interaction processes—the formal organization structure and technology are indirect determinants	Group norms and attitudes, and leadership style, are critical environmental concepts Some discussion of climate or atmosphere concepts	*Very likely integration*—related to study of multiple group settings and total system functioning, and to increased concern with individual psychology

Note.--Reprinted from an article by G. H. Litwin published in R. Tagiuri & G. H. Litwin's Organizational Climate: Explorations of a Concept, Harvard University, 1968, pp. 56-57.

In contrast to other psychologists, students of organizational behavior have had somewhat more success in experimenting with ecological phenomena. This is in part due to several properties of the organization which render it particularly amenable to such treatment: (a) it is one type of environment that has been, for a long time, commonly accepted as influential in certain aspects of human behavior; (b) in a relative

sense, the formal organization can be more clearly delineated than other natural environments; and (c) it is an environment which offers readily accessible sources of information about itself (e.g., records, statistical summaries, structural charts, participant perceptions). Furthermore, the organizational psychologist has already developed empirical methods more appropriate to the study of environments--the proliferation of variables within social systems and the complexity of their interactions have forced him to abandon most of the outmoded dependent-independent variable models and compelled him to adopt eclectic, systems models (cf. Forehand & Gilmer, 1964, p. 362.)

It is because the organization is an empirically accessible environment that the organizational psychologist finds himself in an extremely advantageous position to study the environmental determinants of human behavior.

The Empirical Study of Situational Contingencies

Environmental factors help to explain most of the phenomena with which organizational psychologists have concerned themselves. This is a contention upheld in an ever-growing body of literature. In fact, so considerable is the evidence that space limits us to only a few examples.

Forehand and Gilmer (1964) provide a comprehensive over-

view of this environmental literature before 1964. In more detail, it seems that job performance and satisfaction are often a function of the interaction between the individual and the job environment (Pervin, 1968; Porter & Lawler, 1965). Both absenteeism and turnover have been similarly depicted (Farris, 1971; Hackman & Lawler, 1971; Porter & Lawler, 1965; Ross & Zander, 1957). Growing importance has been conceded to situational variables as determinants of leadership effectiveness (Vroom & Yetton, 1972a, 1972b) since Fiedler and his confederates initially recorded their findings (Fiedler, 1955, 1958, 1962, 1966, 1968; Fiedler et al., 1961; Hunt, 1967; Hutchins & Fiedler, 1960). Even in the areas of test validation, selection, and placement, Dunnette's (1963, 1967) moderator model represents an attempt to synthesize the expanding body of data which indicates that personnel abilities must be evaluated in terms of individual-environment fit. Finally, the entire field of personnel training rests on the tacit assumption that calculated manipulations of the trainee's environment will result in modified behavior.

But the tenor of this environmental literature has been reductionistic. For example, Pugh et al. (1968), in describing just the structural properties of social environments, came up with 64 variables. March and Simon (1958) broke the organizational system down further into 206 variables. This

approach carries over into experimentation, the tendency being to focus on a given behavior as the dependent variable (e.g., job performance, satisfaction, learning rate, leadership ability) while manipulating one or more situational contingencies (e.g., organizational size, hierarchical status, stress, rules, incentives). This atavistic type of design was misappropriated from early experimental psychology. Though it affords us the luxury of evading the complexity and systemic interrelatedness of an awesome number of variables, yet it does violence to the actual nature of organizations. As a consequence, most research deals with only isolated situational contingencies rather than with integrated systems of social environment.

It is safe to say that almost every phenomenon the organizational psychologist examines is moderated by environmental factors. Beyond this, the contemporary literature gives rise to some very disturbing questions. Are we any better able to make empirically valid statements about holistic social environments and their effects on people? And are we any better able to engineer our social environments so as to optimize people's psychological comfort and behavioral output? These questions are indeed disturbing to the behavioral scientist because they reveal just how little pragmatic value his research has had in the improvement of total environmental

systems.

The Management of Social Environments

The difficulty lies, of course, in the irrelevance of most psychological research to those at policy-making levels. And it soon becomes apparent why.

Imagine, if you will, our reductionistic science solving the problems of turnover, absenteeism, job satisfaction, productivity, etc. once and for all. Given the methods of scientific inquiry as we now know them, these ideal solutions would have to be specific to the particular problem. But even were this perfect state of affairs to be reached, how would the organization function as a whole once these micro-solutions were implemented? Just as an example, extreme routinization might be the answer to increased productivity, while only enriched tasks would increase workers' satisfaction. These two solutions, however, could not be integrated into the same system. Therefore, by designing environments around the piecemeal suggestions of reductionistic research, a Frankenstein's monster could all too easily result.

Going so far as to imagine that an atomistic science will some day proffer textbook solutions to specific problems, those at policy-making levels will still receive little solace. They alone are responsible for molding their organizations

into smoothly running, integrated social systems. Yet, the business executive, administrator, and statesman desperately seek guidance in managing their social environments. If much of the empirical work done to date is irrelevant, then to what quarter have they turned for advice?

It is to the organizational theorist that men of action have turned. Predictably, theoretical speculation has flown far in advance of hard research. These theorists have transcended the reductionism of their field and have begun to explore the organization as a whole. In so doing, as noted earlier, they have concentrated increasingly on ecological factors. This is perhaps most true of the human-relations school (cf. Table 1).[2] Their terminology is revolutionary in that it permits nonreductionistic distinctions to be made between total-system environments: "authoritative" vs. "participative group" (Likert), "theory X" vs. "theory Y" (McGregor), "habit" vs. "problem solving" (Bennis), "bureaucratic" vs. "human-relations" (Litwak), "closed" vs. "open system" (Barnes), and "Structure I" vs. "Structure IV" (Argyris).

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[2] In Table 1, Litwin refers to the human-relations school as "Scoial Systems Theories." Mouzelis (1967) has more extensively categorized this tradition into Mayo's orthodox school, Warner's Chicago school, the interactionists (Chapple, Arensberg, W.F. Whyte, Homans, Sayles), group dynamics (e.g., Lewin, Argyris), and March and Simon's decision-making approach.

These terms represent progress being made toward conceptualizing macroqualities of social environment and they, plus the theorizing that surrounds them, are beginning to fill the void that Mouzelis sketched here:

> There is no doubt that in the present state of organisational research, much more emphasis than before must be given to the organisation as a whole, to its environment and the organisational features of society as a whole. There are two main reasons for giving priority to such a broader scope.
>
> First, if by focusing on the individual or group level the organisational structure and its environment are not seriously considered, one risks the eventuality of a complete failure and loss of time and energy . . . .
>
> Second, with a broader scope one has more chances for studying important problems, problems which are crucial for understanding our civilisation and its present crisis [1967, p. 173].

Organizational theorists, especially those mentioned above, are laying the groundwork for future research with a much broader scope.

Unfortunately, their promising first steps have become distorted into something quite different. Anxious to supply practitioners with guidance, many theorists have prematurely prescribed one genotypic social milieu over all others. With a great deal of deceptive consistency, organizations designed around human-relations (theory-Y) principles have been presented as unequivocably superior to those designed around classical-management (theory-X) principles. Hence, one is left with the impression, notably by McGregor (1960), Likert

(1961, 1967), and Argyris (1964), that social systems should be modelled after the theory-Y paradigm. Hoping to improve the psychological quality of their organizational environments, many practitioners have followed such advice with less than resounding success.

Almost no empirical data can be found at this macroanalytic level, a fact that renders even the most well-intentioned advice hazardous. Organizational theorists must first provide reliable and valid operational constructs by which to depict genotypic social environments. Next, research must examine these genotypes' differential influences on human behavior. But only as a final step can empirically substantiated propositions be derived in this domain. And not until then will organizational theory have passed beyond idle speculation into science.

Any major advance along these lines must take as its starting point the task of operationalizing global, psychological qualities of social environment. It is "organizational climate" that appears to have assumed precisely this critical role.

"Organizational Climate": Towards a Science of Social Environment

Not too long ago, scientists began calling attention to

differences in social-system 'personalities' or climates (Dill et al., 1962; Gilmer, 1966; Halpin & Croft, 1963). Halpin's observation is representative:

> Anyone who visits more than a few schools notes quickly how schools differ from each other in their "feel." . . . [A]s one moves to other schools, one finds that each appears to have a "personality" of its own. It is this "personality" that we describe here as the "Organizational Climate" of the school. Analogously, personality is to the individual what Organizational Climate is to the organization [1966, p. 131].

Some, like Gellerman (1960), have gone so far as to compose vignettes about different types of organizational climates reminiscent of the early narrative descriptions of personality types. Argyris (1958) felt obliged to justify his own earliest excursion to the climatic level of analysis with these words:

> Anyone who conducts research on human behavior in organizations is always faced with the problem of ordering and conceptualizing a buzzing confusion of simultaneously existing, multilevel, mutually interacting variables. . . . In reality they are mixed beyond classification into any academic compartments, forming a pattern in which each plays a functional role feeding back and upon the others to maintain itself and the pattern. This new and fourth level of analysis we shall define as <u>organizational behavior</u>. It is our intent to show that the organizational behavior level is a discrete legitimate level of analysis . . . [1958, pp. 501-502].

Since "organizational climate" is synonymous with the overall quality of a social environment, it is not surprising

to find the concept gaining in importance.[3] When placed in historical perspective, this parallels the increasing weight being given to environmental concepts generally within organizational theory.

The climate concept is pushed to center stage by the spirit of the times--by a common recognition that environment strongly influences behavior, by psychology's general ineptitude in molar environmental research, and also by the pressing demands for such research. "Organizational climate" is a construct, moreover, which provides escape from an all-too-prevalent reductionism. As such, it holds the key to a level of analysis capable of depicting and experimenting with molar social environments. But perhaps most provocative of all is the possibility that research using a climatic level of analysis will do what previous environmental study has failed to do. That is, supply those at policy-making levels with empirically confirmed guidelines for the management of the psychological quality of their social environments.

Conclusion

These are the considerations which have prompted the two

---

[3] Parenthetically, Gilmer (1966) attributed the concept of climate to Gellerman's People, Problems, and Profits (1960). This cannot be correct since Chris Argyris was using the term in 1958.

dominant thrusts of this work. First, we will explore what "organizational climate" is and evaluate its ability to provide a basis for the comparative analysis of total systems. Second, if climate provides a sound empirical construct by which to study holistic environments, we will compare two of the most recurring environmental paradigms in organizational literature. As our title reveals, one paradigm is derived from human-relations principles and the other from classical-management principles. If we succeed in our purpose, we actually will be comparing the viability of the two major organizational theories developed in this century. In this pursuit, we envision ourselves assessing total work climates and being perhaps in the throes of conceiving a managerial <u>science</u> of social environment.

> You cannot think without abstractions; accordingly, it is of the utmost importance to be vigilant in critically revising your modes of abstraction. . . . A civilisation which cannot burst through its current abstractions is doomed to sterility after a very limited period of progress [Whitehead, 1925, p. 59].

CHAPTER 2

The Construct of "Organizational Climate"

We have tried to trace the etiological forces that serve to make "organizational climate" a particularly interesting concept for psychology. But, as a neologism, its life expectancy hinges on other factors: (a) semantically, does it denote a unique referent otherwise overlooked by our present language?; (b) empirically, can it be operationalized reliably and validly?; and (c) heuristically, does it assist in explaining behaviour, generating hypotheses, and contributing to the development of psychological and organizational theory? This chapter and the next two pursue these lines of inquiry.

Toward More Rigorous Construct Explication

Those first borrowing the term "climate" from meteorology clearly had a metaphor in mind. The object of that metaphor was climatology, a physics of atmosphere which mathematically synthesizes the elements of climate and their inter-

actions (temperature, moisture, winds, pressure, evaporation, etc.). Moreover, genotypes of climate have been formulated which are capable of conveniently designating many atmospheric dimensions simultaneously (e.g., marine, mountain, continental). As will become apparent, these meteorological overtones have been transmitted, through metaphor, to climate's psychological meaning (cf. Tagiuri, 1968a).

Renato Tagiuri (1968a) defines "organizational climate" briefly as "a relatively enduring quality of the internal environment of an organization. . . [p. 27]." He, perhaps more than anyone else, has contributed to climate's explication:

> Climate is a molar, synthetic concept (like personality).
> Climate is a <u>particular</u> configuration of situational variables.
> Its component elements may vary, however, while the climate may remain the same.
> It is the <u>meaning</u> of an enduring situational configuration.
> Climate has a connotation of continuity, but not as lasting as culture.
> Climate is determined importantly by characteristics, conduct, attitudes, expectations of other persons, by sociological and cultural realities.
> Climate is <u>phenomenologically</u> external to the actor, who may, however, feel that he contributes to its nature.
> Climate is phenomenologically distinct from the task for both observer and actor.
> It is in the actor's or observer's head, though not necessarily in a conscious form, but it is based on characteristics of external reality.
> It is capable of being shared (as consensus) by several persons in the situation, and it is interpreted

> in terms of shared meanings (with some individual variation around a consensus).
> It cannot be a common delusion, since it must be veridically based on external reality.
> It may or may not be capable of description in words, although it may be capable of specification in terms of response.
> It has potential behavioral consequences.
> It is an indirect determinant of behavior in that it acts upon attitudes, expectations, states of arousal, which are direct determinants of behavior [1968a, pp. 24-25].

Conceptual Adjustments: Fitting Climate Into Our Already Existing Conceptual Framework

Difficulties still persist despite Tagiuri's carefully wrought definition. This is only to be expected for, as with the advent of any truly new concept, there must take place a process of alignment between it and the already existing conceptual framework (i.e., nomological network).

Climate and other organizational variables. What organizational properties or microvariables contribute most to the environmental climate? Reflecting the bifercation of organizational theory in this century (classical management vis à vis human relations), two different answers to this question have been proposed. On one hand, the classical tradition stressed structural or formal properties (Hall, 1963; Pugh et al., 1968); on the other hand, the human-relations tradition stresses functional variables, especially social interaction

(Argyris, 1964; Guetzkow & Bowes, 1957; Likert, 1967). Typical of the latter, McGregor (1960) and Schein (1965) focused on "managerial climate," the prevailing assumptions among management concerning the nature of man; these assumptions purportedly determine the quality of social interactions. Forehand (1968), more inclusively, saw climate as entailing at least three broad sets of variables, viz., environmental, personal, and outcome variables. Needless to say, the weight given specific contributory elements varies as a function of the theoretical persuasion and research interests of the particular investigator.

Theoretical predilections aside, Tagiuri maintained that the term "climate" refers to "configurations of situational variables" experienced by or influencing participants. Any organizational variable is thereby implicated. Once this is conceded, it becomes necessary to have a 'map' of all these variables, each of them being a potential contributor to climatic quality. Triandis' (1966) total-system model is presented in Table 2 and recommended as a comprehensive and useful diagram of the organization's complex variable structure. In the end, it will be research and factor analytic study that will isolate the most significant contributors to climate from among these many basic elements.

"Climate" would have sufficient syntactical justification

TABLE 2

The Complex Variable Structure of Organizations

INPUTS	STRUCTURES	FUNCTIONS	OUTPUTS
ENVIRONMENT *Economic* *Political-legal* e.g., Presence of common enemy *Working conditions* **ORGANIZATIONAL HISTORY** *Previous decisions* *Existing structures* e.g., flat-tall *Climate of labor-management relations* **OTHER CONSTRAINTS** *Lack of* good new ideas know-how good people capital markets **RESOURCES** *People* Demographic characteristics e.g., age, race, social class, rural-urban backgrounds, religion Abilities e.g., verbal, quantitative, perceptual Personality e.g., tolerance for uncertainty persuasiveness perceptive of least preferred co-worker Attitudes, interests, goals, values Reference groups of the employee and characteristics of these groups Habits *Normative resources* e.g., ideas about appropriate power appropriate behavior of company toward employees appropriate behavior of supervisor toward subordinate company to public, customers, etc. *Financial Resources* *Technical know-how* **TECHNOLOGY** *Equipment* *Job characteristics* structure percent programmed by environment complexity variability (can supervisor check performance?) requirements ability personality e.g., personal contacts with insiders-outsiders	**INTERACTIONS AND COMMUNICATION** *Type of* who to whom how frequently who initiates functional-emergent formal-informal **SOCIOMETRIC** *Position of leader in this structure* **STATUS** *Power structure* *Status congruence* **ORGANIZATIONAL STRUCTURE** *Tall-flat* *Span of control* *Division of labor* no. of roles/no. of men uniqueness of roles line-staff locus of decision locus of responsibility **GROUP CHARACTERISTICS** *Size* *Cohesion* *Permeability* *Viscidity* (absence of cliffs) *Heterogeneity* member abilities personality attitudes goals interests **FIT** *Between job requirements* and member abilities personality attitudes behavior *Relation of individual* and group goals leader goals company goals	**LEADER** *Promotive* (initiating structure) information receiving processing planning organizing integrating coordinating directing controlling measuring results training generating insights *Maintenance* (consideration) goal formulation role specification norm specification group identification rewarding reconciliation process facilitation *Monitoring* pressure for production norm enforcement **EMPLOYEE** *Participation* in decisions in norm formulation *Use of skills* *Productive behavior* exertion of effort exploration of environment acquisition of information problem-solving *Obtaining rewards from using abilities* *Obtaining rewards from social comparisons*	**OBJECTIVE** *Quantity of product* *Quality of production* *Profits* *Absenteeism* *Turnover rates* **ATTITUDINAL** *General satisfaction* *Intrinsic job satisfaction* *Self-actualization* satisfaction with extent of use of abilities satisfaction with responsibility and authority satisfaction with promotions satisfaction with self-development *Satisfaction with supervision* satisfaction with supervisory administrative abilities satisfaction with supervisory consideration satisfaction with work-load and pressure confidence in justice and interest of management satisfaction with communications *Satisfaction with job security* *Satisfaction with working conditions* satisfaction with work load and pressure of job itself satisfaction with work environment, including hours, shifts, health hazards, etc. low fatigue or monotony *Satisfaction with fellow employees* *Financial satisfaction* satisfaction with salary or wages satisfaction with vacation rules and fringe benefits satisfaction with insurance plans satisfaction with profit sharing plans *Pride in organization* *Morale:* Congruence of individual and group goals

Note.--Reprinted from an article by H. C. Triandis published in J. D. Thompson's Approaches to Organizational Design, University of Pittsburg, 1966, pp. 61-63.

if it were only a notational device to summarize the legion of variables represented in Table 2. But if it were nothing more than a convenient place holder, it would have no unique referent. Interpreted in this way, climate would be merely a tautological renaming of already familiar subsystem phenomena. These considerations can give rise to a lengthy philosophical debate over whether it is legitimate to reduce "climate" to more elementary terms.

Pertinent here is the Gestalt dictum, "The whole is more than the sum of its parts." For example, to paraphrase C. D. Broad's (1925) observation, neither Na nor Cl is salty although NaCl obviously is. In other words, there are propositions true of the whole, yet not true of its parts. Climate represents a case in point--there may be empirical statements true of it that are not true of less molar variables. Argyris (1958) has contended that climate permits access to a "discrete legitimate level of analysis . . . [p. 502]." This contention has recently gained an intriguing bit of empirical support: Schneider (1973) found that consumer behavior was more closely related to global climate perceptions than to perceptions of specific events or experiences (cf. p. 254).

If there are, as there seem to be, statements peculiar to climate alone, then it is not just an empty term. And

only by invoking the careful distinction between global climate and lower-level variables will climate be elevated beyond some vacuous redundancy of subsystem elements to the position of denoting its own unique referent. Also, when this same distinction is guarded, "climate" may become a much more meaningful empirical notion:

> Regarding climate specifically, it seems reasonable to hypothesize that people do not respond to particular features of the system, but rather to the overall quality of the system [Litwin, 1968, p. 58].

In order to guard the important distinction between climate and other organizational variables, a realization of their respective levels of analysis is essential.

The ontological status of climate. The question naturally arises, What is climate's ontological status? Certainly, it is not a material object. According to Tagiuri, climate is "phenomenologically external" to the organizational members, though still only "in their head." But being "veridically based on external reality," climate does denote a class of fairly stable environmental qualities. Accordingly, it has much the same status as other descriptive, qualitative genera like "taste," "smell," "color," "sound," personality," etc. And like them, this status makes climate no less suitable a topic for scientific inquiry--they are all qualities based on perceptual differentiations between complex sets of stimuli.

If need be, climate's social-psychological reality can also be defended on the grounds of what Merton (1957) called the "Thomas theorem": "If men define situations as real, they are real in their consequences [p. 421]." Still, to what degree does climate exist independently from the perceiver? This question is reminiscent of that hackneyed philosopher's riddle of whether a tree falling in a deserted forest 'really' makes any noise. Climate is as independent of the perceiver as is sound, smell, taste, etc. So the ontological status of climate is no more in jeopardy than are a multitude of other perceptual phenomena.

Once operationalized, is climate to be handled as a dependent, independent, or intervening variable? The recent adoption of a systems model for organizations has detracted from the traditional independent-dependent variable schema: a major premise of general systems theory is that any event is more or less dependent on every other event, thus making all variables dependent and independent at the same time (cf. Lichtman & Hunt, 1971, p. 286). It is quite conceivable that an experimental design could employ climate as an independent variable to explain differences in some behavior or as a dependent variable, itself affected by certain changes within the organization.

If classification were forced, perhaps the status of

intervening variable would be most apropos (Schneider, 1973; Schneider & Hall, 1972), but traditional terminology seems inadequate.

The person-climate boundary. Identification of the precise person-environment boundary has always presented a sticky problem (cf. Angyal, 1941). This difficulty spills over into establishing the exact relationship between the person and climate, where one leaves off and the other begins. Any confusion here is a byproduct of the entrenched Newtonian spacio-temporal worldview--one is prone to visualize the person and climate as two billiard balls, each clearly distinct, one colliding with and causing the other to be set in motion. However, if men like Hume, Heisenberg, Einstein, and Von Bertalanffy have had any impact at all upon our thinking, we should be able to relent somewhat on this antiquated worldview. The person and climate are not two discrete material substances; since climate, as a quality, is processed through individual perceptions and is influenced by individual behavior, the person and climate coexist in a reciprocal relationship. This person-climate symbiosis obscures any precise spacio-temporal boundary line or causer-affected sequence except, perhaps, a strictly relative one.

This boundary issue bears directly on the practice of operationalizing "climate." Is climate to be found most

clearly 'in' the person's perceptions or 'in' the structural, nonpersonal properties of the organization? This will be a central topic of the coming chapter.

Climate and its cognates. Tagiuri (1968a, pp. 20-23) placed "climate" in the hierarchy of cognate environmental terms. He fixed its position between the broader notion of "environment" and the more specific "situation," "field," "behavior setting," "circumstances," and "conditions." Hence, it falls roughly at the same level of generality as "milieu" and "atmosphere." Climate is a middle-level term in part free from reductionistic detail, but not as detached from specific phenomena as is "environment." Much of its semiotic power, as emphasized in the opening chapter, is derived from this hierarchical position--it becomes an extremely useful analytical concept permitting the formulation of general propositions so essential to organizational theory.

Plainly, much of climate's ability to denote a unique referent depends on the global, nonreductionistic quality that we concede to it. Why, then, has "climate" received so much more attention than "atmosphere" and "milieu," both of which are presumably at the same global level? The answer seems to lie in the strength of the original meteorological metaphor. Since climatology is a 'physics' of atmosphere, climate becomes imbued with a certain empirical pedigree that

we are reluctant to ascribe to the other terms. And like the weather, climate is more immediately tied to the elements of atmosphere and has greater implication for behavior. It is this richness of metaphor that has favored "climate's" popular usage, although "milieu" and "atmosphere" remain acceptable synonyms.

Conclusion

In retrospect, "organizational climate" seems to have a unique referent which might otherwise be ignored--the experienced quality of total-system environment within an organization. In attempting to bring this new concept into line with other concepts, it appears that climate is not an outrageous innovation. In fact, philosophical problems beset it no more than they do other perceptual modalities that psychologists study without hesitation. But the empirical measurement of climate brings us to a new set of problems which, if not surmounted, nullify "climate's" scientific usefulness.

> The labor involved in developing research instruments that would prove both reliable and valid is indeed formidable, but unless progress is made in operationalizing the concept of organizational climate it will remain a common-sense rather than a social science concept [Evan, 1968, pp. 122-123].

CHAPTER 3

Defining Organizational Climate Operationally

Despite the importance of developing environmental assessment techniques, only within the last decade have serious attempts been made by a mere handful of investigators. And even fewer of these seek to measure holistic environments. Instead, the social milieu is splintered into fragments which are then separately appraised. As a result, the total-system nature of climate has rarely been translated into operational terms (cf. Tagiuri, 1968a, p. 28).

In the present chapter, strategies for assessing climate are examined and their potential outcomes weighed. The central issue, of course, is whether climate can be operationalized.

Operationalisms Based on Objective Organizational Data

From the onset of environmental research, one strategy has been to collect structural, depersonalized information

about the organization--its size, span of control, role specialization, and height, to name only a few properties (Astin, 1962; Evan, 1963; Pugh et al., 1968). A somewhat different tactic is involved when the people that populate an organization are analyzed (Becker et al., 1961; Darley, 1962; Gee & Glazer, 1958; Goldsen et al., 1960). All these techniques operationalize the environment in much the same way--they rely on organizational records or trained observers. Palmer (1961), eclectically, appraised not only 21 situational properties, but also nine personnel behaviors.

As a genre, these environmental assessments come recommended by their objectivity and their typically high reliability. On the other hand, if accepted as the sole indices of an organization's atmosphere, some difficulties arise.

First, misfortune befalls anyone who attempts to be thorough in his handling of objective data. Were his approach to run its natural course, the ubiquitous quality of environment would soon implicate an almost infinite number of elementary variables. These situational fragments cover the gamut from how many office memos are circulated to whether armed guards are at the entrance (Gilmer, 1966, p. 70). Obviously, some selectivity must be exercised, but on what basis? Pugh et al. (1968) could afford to be selective because they were interested only in one type of environment,

a bureaucratic one. This enabled them to concentrate on just a limited set of variables reflecting bureaucratization. The lesson to be learned from Pugh et al. is that an almost infinite domain of objective properties can be greatly reduced if the researcher settles upon the type or quality of social environment he wishes his instrument to detect.

Second, objective methods encourage a reductionistic treatment of climate, breaking it up into microproperties. Climate, however, stands at a macrolevel of analysis, quite distinct from factual detail, and can be operationalized only by configurations of these factual details. Objective measures, thus, tend to become fixated at lower levels of analysis than that usually accorded to climate.

Finally, climate is defined as a perceived quality of environment--there is no assurance that even configurations of objective details will bear a resemblance to that quality. Studies on human perception abound with evidence that there is no simple equivalency between objective stimuli and subjective impression. Here we have one of the most severe weaknesses in objective appraisals of climate.

Operationalisms Based on Subjective, Perceptual Impressions

The most popular environmental assessment strategy has been to rely on personal perceptions. These perceptions

can be gathered from organizational members or from those on the periphery of the system, although reports by the latter are more akin to what Perrow (1961) called "organizational prestige" or public image. Pace (1963), restricting his attention to academic environments, developed the College and University Environment Scales (CUES). CUES elicits students' perceptions of specific events, conditions, and practices found on most campuses and is interpreted in much the same manner as public-opinion polling--if students concur by greater than a two-to-one margin, then this consensus is accepted as descriptive of their school. With slight variation, the same technique is used in many perceptual measures of climate (e.g., Forehand, 1968; Friedlander & Margulies, 1969; Litwin & Stringer, 1968; Schneider & Bartlett, 1968).

The suitability of perceptual measures is self-evident in that climate is defined as a perceived quality of environment. On the negative side, most of these measures have specific, factual details as their subject matter and, therefore, suffer the same defect as most objective indices--a tendency toward reductionism.

There is another sort of perceptual measure which avoids fixation on detail and the accompanying pitfalls. Here informants are asked to describe the climate itself or to select descriptive adjectives such as "cold," "warm," "friend-

ly," "bureaucratic," etc. (e.g., Fiedler, 1962). The immediacy with which atmospheric quality is ascertained bypasses subsystem contributors to climate so that they are not easily identifiable. That same immediacy also obliges the investigator to be very sure, beforehand, of the type of climate he wishes his instrument to detect.

Likert's (1967) Profile of Organizational Characteristics represents an interesting hybrid procedure. On the one hand, he used participant perceptions of environmental details, thus revealing the building blocks of climate (e.g., motivation, leadership, communication). On the other hand, he resisted splintering the atmosphere into these fragments. Instead, his questionnaire differentiates between global climatic qualities (e.g., "exploitive-authoritative," "participative group"). This enabled him to preselect only those factual details pertinent to his genotypes.

There still remains what might appear to be a common weakness shared by all perceptual measures of environment. Research has indicated that climate perceptions vary systematically as a function of the observer's vantage point within the social system (Schneider, 1972; Schneider & Bartlett, 1969). If there is no one organizational climate, then whose view is the <u>correct</u> one? The solution must be relativistic (cf. Weick, 1968). Given that the investigator's focus is

on the total system, then the population mean will be of most interest. Hierarchical, departmental, or various other group means may become more germane if he wishes to dissect the organization and examine its subsystem climates. On still another occasion, variation in the individual's climate perception might be the topic of interest, perhaps where predictions of individual behavior are sought. So the 'correct' climate perception is contingent upon the investigator's research design, his level of analysis, the phenomenon being explained, and the subject's own frame of reference. All in all, this flexibility of perceptual measures seems to be more an advantage than a disadvantage.

One objection to perceptual measures defies rebuttal--there is always the skeptic who will complain that a common delusion or sensory distortion is being tapped. To silence him, one can enlist independent validation from measures of objective phenomena upon which perceptions are supposed to be veridically based.

The Relative Merit of Objective Versus Subjective Measures

Finding its way from philosophy into early psychology (cf. Heider, 1939), the dispute over the relative accuracy of subjective reports versus more objective methods still rages on. For the immediate issue, climate's definition leaves

little room for polemics: since climate is a perceived quality of environment, the primacy of perceptual measures is self-evident.

From the previous discussion, however, it is also clear that both subjective and objective indices each have their own peculiar limitations. While subjective measures may be suspected of reflecting some common delusion, objective measures rarely arouse this suspicion. On the other hand, while objective measures might not yield climate's perceived quality, subjective measures surely do. In short, these two assessment strategies compensate for each other's weaknesses.

This should come as no surprise since different operationalisms of the same construct are often known to provide one another with convergent validity. Campbell (1961), in fact, has advocated the multiple measurement of psychological variables:

> If there are multiple indicators which vary in their irrelevant attributes, and if these all agree as to the direction of the difference or the theoretically intended aspects, then the number of tenable rival explanations becomes generally reduced and the confirmation of theory more nearly certain [1961, p. 345].

At so incipient a stage in climate research, the promise of this sort of convergent validation is extremely attractive. Investigators could easily take advantage of <u>both</u> subjective and objective outcroppings of climate for the strongest re-

search design.

The Empirical Reliability of Climate Measures

The reliability of climate appraisals is of considerable significance. Poor interobserver agreement undermines climate's status as a phenomenal quality of the atmosphere. And chronically low internal reliability is symptomatic of heterogeneous item content and raises doubts, if not about the existence of a core climate concept, at least about our ability to capture it operationally. For these reasons, reliability is a necessary, though not sufficient, condition for validity.

Objective indices exhibit interobserver agreement mainly because of the innate stability and objectivity of the structural properties or company records upon which they usually focus. Nevertheless, few would expect any consistency or homogeneity across the independent factual details studied and, therefore, internal reliability tends to be ignored. Here, climate is assumed to be multidimensional. But, as we shall see in the next chapter, if select factual details are interpreted as indicative of some common global quality (e.g., "bureaucracy," Pugh et al., 1968), then even internal consistency should be insisted upon.

In contrast, subjective measures are presumed to and do

have respectable internal consistency. Table 3 displays this reliability both for Likert's (1967) nonreductionistic measure and for the various dimensions into which climate has been subdivided.

TABLE 3
Internal Consistency of Perceptual Climate Measures

Source	Dimensions of Climate	r_{xx}
Bowen (personal communication to Schneider & Bartlett, 1969)	1. potency/competence	.82
	2. conformity	.59
	3. activity/dominance	.50
	4. evaluative	.84
	5. emotional control	.49
Litwin & Stringer (1968)	1. structure	.78
	2. responsibility	.68
	3. reward	.81
	4. risk	.67
	5. warmth	.71
	6. support	.75
	7. standards	.61
	8. conflict	.48
	9. identity	.79
		employee/manager
Schneider & Bartlett (1970)	1. managerial support	.90 .90
	2. intra-agency conflict	.76 .66
	3. managerial structure	.65 .69
	4. new employee concern	.59 .56
	5. agent independence	.52 .58
	6. general satisfaction	.74 .78
Hall (1963)	1. hierarchy of authority	all r_{xx} s between .80 & .90
	2. division of labor	
	3. system of rules	
	4. system of procedures	
	5. impersonality	
	6. technical competence	
Likert (1967)	Molar climatic continuum	Study 1: .90 Study 2: .97 Study 3: .98

As for the interrater consensus among observers of climate, it has already been noted that differences can occur depending upon the observer's position within the social system (Schneider, 1972). Despite this, Schneider and Bartlett (1970) discovered that for as few as five individuals the re-

liability was .50 and that for 20 raters it would have been as high as .80. No other available study has examined interobserver agreement, a surprising fact since this kind of evidence would go a long way in empirically legitimizing climate research.

Obviously, with so little precedent to go by, it is hard to draw any definitive conclusions about the reliabilities that climate measures exhibit. Generally, the results so far are encouraging although certainly more research is needed in order to fill the existing void.

Some Evidence for the Convergent and Discriminant Validities of Climate Measures

MacCorquodale and Meehl (1948) reasoned that operationalisms pretending to embody a certain construct should relate meaningfully to other variables. Although there is little research from which to extrapolate, some data indicate that climate measures can satisfy this criterion of construct validity.

For instance, objective and subjective assessments of the same climate have been found to yield similar results (Astin, 1963; Litwin & Stringer, 1968). Pace (1968) ratified this parallelism here:

> Whether the environment is characterized by the collective perceptions of the students who live in it, or whether it is described by [objective] information . . . the results are generally congruent. In general, the degree of similarity which one might reasonably expect between the measures are expressed by correlations ranging from the low .30s to the high .60s [1968, p. 138].

This convergence of climate measurement serves a dual purpose: first, the construct validity of these measures is reinforced in that two very different ways of assessing the same variable produce comparable results; at the same time, the dilemma over whether to assess climate objectively or subjectively is to some extent diminished by this parallelism.

Coherent relationships between climate measures and totally different constructs can also enhance the credibility of climate research. Common-sense distinctions between college atmospheres (e.g., small liberal arts vs. large state) conform nicely with the outcome of a climate questionnaire (Pace, 1963, pp. 138-139). Again in academic settings, Skager et al. (1966) found that systematic changes in students' self-ratings and life goals are not only related to school climate, but are congruent with it.

Further, there is evidence that job satisfaction measures are meaningfully related to climate. Friedlander and Margulies (1969) correlated eight dimensions of climate with three dimensions of job satisfaction. As was to be expected, the two most situationally dependent forms of satisfaction

(with interpersonal relations and advancement) were more strongly related to climate than the third (satisfaction with task-related self-actualization).

Individual creativity and climate also seem to be intelligibly related. Pelz and Andrews (1966) studied the scientific contributions of 1,300 R & D scientists and engineers in terms of patents, reports, published papers, and peer ratings. They found that creativity is more likely to occur in a particular climate--one of "creative tension" where workers share interests but vary in technical background, where time is not consumed by research alone, and where there is the opportunity to participate in a number of activities not necessarily relevant to the employee's major interests at the time.

As might be anticipated, an organization's climate, its public image, and its customers' behavior are all interrelated. Schneider (1972) reported that a bank's internal climate, as perceived by employees, is transmitted to its customers, thus affecting the bank's public image. He went on to hypothesize that climate expectations can also be transmitted to job applicants in the same way and his findings confirmed this. More recently, Schneider (1973) further discovered that customers' global climate perceptions are related to their consumer behavior.

A substantial proportion of the ecological literature focuses on the congruence between climatic quality and participants' traits. As one example, the dropout rate in schools (i.e., turnover) is partly a function of the consonance between environmental properties and student personalities or self-perceptions (Funkenstein, 1962; Pervin, 1968; Stern, 1962). Pervin (1968) also discovered that students perceiving themselves as dissimilar to other students, the faculty, or the administration tend to be less satisfied with the interpersonal aspects of their setting. A decrement in work satisfaction was found when disparity existed between individual expectations and actual climate (Hall & Schneider, 1972). Andrews (1967), in investigating the consequences of dissonance between individual and company values, concluded that an individual's chances of success are greater when his values are consistent with those of the system. Finally, Litwin and Stringer (1968) noted a congruence between an individual's motives and the quality of climate which surrounds him.

In the foregoing discussion, we have documented a number of meaningful relationships between indices of climate and other psychological variables. As these accumulate in the literature, increasing construct validity must be attributed to measures of climate. But just as important, these same

relationships serve to underscore climate's potential explanatory power with regard to many key phenomena, only a few of which are job satisfaction, success, creativity, turnover, public image, and consumer behavior.

The Factorial Dimensions of Climate Measures

A confusing variety of climatic dimensions has been spawned by unstandardized measurement procedures and a lack of accord over what climate actually is. However, these dimensions can be systematized because they belong to two distinguishable levels of analysis. At a lower level, rudimentary fragments of environment have been grouped together to form factors or subdimensions of climate. At a higher level, global dimensions or taxonomies have been created in order to classify total climates.

Endeavors at the lower level of analysis are summarized in Table 4, separating a priori from statistically derived factors. To get some idea of interstudy agreement, factors demonstrating some similarity have been arranged horizontally into the same factor grouping even if derived orthogonally. Being artifacts of free invention, a priori factors show considerable heterogeneity across studies. Depending upon their creator's focus, these a priori factors range anywhere from objective details, to social processes, to general atmos-

TABLE 4

Factorial Composition of Organizational Climate

Factor Groupings	Factor Analytic Research								A Priori Factor Research (Objective properties→processes→qualities)								
	Litwin & Stringer (1968)	Schneider & Bartlett (1970)	Taguiri (1968b)	Schneider & Hall (1972)	Likert[a] (1967)	Prien & Ronan (1971)	Pugh et al. (1968)	Halpin & Croft (1963)	Sells (1968)	Pugh et al. (1968)	Chein (1954)	Hall (1963)	Litwin & Stringer (1968)	Likert (1967)	Forehand & Gilmer (1964)	Bowen (cf. Schneider & Bartlett, 1970)	Fiedler (1962)	Friedlander & Marrulies (1969)
Autonomy vs. constraint	•[b] • •	• •	• •	•		•	• •	• •	•	• •	•	• •	• • • •	• • •	•	•	•	• •
Reward vs. punishment	•	•	•			•							•	•				
Conflict vs. support	•	• • •		•			•	• • • •			•	•	• • • •			• •	•	• • • •
Job, department, or company			• • •	•		• • • •	•		•	• • •	•	•			•		•	
Coworkers			• •						•								•	
Leadership			•	•	•									•	•			
Performance					•	•		• •						•		•		• •
Change and/or technology						• •			•			•						
Philosophy and values									•							•	•	
Temporal characteristics									•									
Decision making														•	•			
Communication processes														•	•			

[a] Likert (1967) reports only two of the five factors obtained in his study.

[b] Asterisks (*) denote individual factors derived in each study.

pheric qualities.

In contrast, statistically derived factors exhibit far more across-study consistency. Despite ununiform measures and despite any indeterminacy introduced by the arbitrary naming and grouping of factors, at least four dimensions of climate consistently reappear. The theme of "individual autonomy versus situational constraints" recurs in nearly every set of factor analytic results. Almost as common are the themes of "reward versus punishment" and "support versus conflict," both entailing the social dynamics of the environment. "Job, department, or company," the fourth factor grouping which deserves special mention, involves the nonpersonal properties of the setting. Our synopsis of climatic factors receives independent corroboration from Campbell et al. (1970) who identified similar factor groupings.

The consistency of climate's factorial composition across studies is most encouraging. It first of all provides convergent validity for climate measures since indices tapping the same phenomenon should behave alike. Second, the stability of these findings suggests that there is something 'out there' that we call "climate." By the same token, the clarity of climate's factorial composition can guide the investigator in sampling only relevant domains of item content, thus refining assessment techniques. Finally,

factors are genotypic dimensions which can rescue the scientist from a buzzing confusion of underlying phenotypic environmental particles (cf. Katzell, 1962, p. 105).

As important as climate's factors are, they still are not climate itself. Many have mistakenly treated them as such, an error in keeping with the reductionistic proclivity of most environmental research. Climate is, on the contrary, a molar atmospheric quality.

It is disappointing to see how few scientists have transcended the study of climate's factorial structure or case studies of particular climates. However, a select few have attempted to identify taxonomic dimensions by which total-system qualities can be compared. Table 5 summarizes this literature. Statistically derived macrodimensions are so scarce that only one was encountered (Halpin & Croft, 1963). In comparison, a priori macrodimensions have been actively sought by theorists. These arrange themselves in a remarkable pattern--they systematically distribute themselves along a continuum running between two opposite poles. This central taxonomic continuum stretches between an environment modelled upon the principles of classical-management theory and an environment shaped from human-relations theory principles (cf. Table 5).

One can hardly quibble with statistically derived fac-

TABLE 5

A Taxonomy of Organizational Environment Genotypes

Common Molar Dimension of Genotypes	O-Factors	A Priori Speculations											
	Halpin & Croft (1963)	Greiner et al. (1968)	Likert (1967)	Forehand & Guetzkow (cf. Forehand, 1968)	Argyris (1964)	McGregor (1960)	Litwak (1961)	Bennis (1959)	Barnes (1960)	Maier (1955)	Burns & Stalker (1961)	Lawrence & Lorsch (1967)
Classical-Management Theory	Paternal Closed Controlled	Directing Withdrawing	System 1 Exploitive Authoritative	Rule Centered	Structure I Mechanistic Pyramidal	Theory X	Bureaucratic	Habit	Closed System	Autocratic Management	Mechanistic	Mechanistic
			System 2 Benevolent Authoritative		Structure II Modified-Formal							
			System 3 Consultative		Structure III Power According to Functional Contribution					Consultative Management		
Human-Relations Theory	Autonomous Open Familiar	Smoothing/ Integrating Compromising	System 4 Participative Group	Group Centered	Structure IV Organic Power According to Inevitable Responsibility	Theory Y	Human Relations	Problem Solving	Open System	Group Discussion	Organic	Organic

tors because of their empirical pedigree, but the majority of these macrodimensions are purely theoretical. Consequently, many questions about them should be raised: can taxonomic dimensions be operationalized?; and, since the taxonomic schema dominating Table 5 is almost totally a priori, why should it be granted any special credence? These are some of the issues that will be taken up in the next chapter.

Conclusion

The main purpose here has been to demonstrate that "organizational climate" is a legitimate empirical concept. We have proceeded along a path analogous to that of construct validation. From explication, we have moved to content validity, on to reliability, then to convergent and discriminant validities, and finally to factorial composition.

One difficulty has plagued this presentation throughout and is symptomatic of a deficiency in the current body of research on climate--most investigators are oblivious to the level of analysis at which they work. The result is a disturbing lack of standardization across studies. At the same time, investigators usually end up confusing climate, reductionistically, with its subdimensions and not handling it as a molar environmental quality.

Most of the research mentioned in this chapter fails to

go beyond treating climate as a set of its subdimensions. But as emphasized before, if "organizational climate" is ever to attain a nonredundant status and if psychology is ever to develop a language capable of discussing and experimenting with molar environments, then reductionism must be abandoned. This, of course, necessitates the use of higher-order levels of analysis--more molar levels than most psychologists have been willing to extend themselves to. In the next chapter, these higher levels are explored in order to determine whether they can even be handled empirically.

> Although many psychologists have long been engaged in the study of individual differences, it is only recently that a few psychologists have turned their attention to the study of institutional differences. Perhaps this is because institutions have been regarded as in the domain of sociology; but in so far as human behavior exists in and is influenced by social contexts, the study of such contexts interacts naturally with the study of behavior. In the psychologist's vocabulary, institutions or organizations can be seen as complex "stimuli" [Pace, 1968, p. 129].

CHAPTER 4

A Taxonomy of Organizational Work Environments

A survey of the literature on climate reveals that much attention is devoted to its subdimensions. But we contend that climate's value lies elsewhere. Climate, being a global environmental quality, is actually a fusion of its subdimensions. It seems only appropriate, therefore, that climate measures should be used to operationalize total-system differences, make distinctions between different types of work atmospheres, and even classify them according to some taxonomic schema. Once this across-system perspective is adopted, climate's immense heuristic power can begin to unfold.

We intend to demonstrate how seminal a concept climate can be if treated as a key to total-system comparisons. In so doing, we will explore the feasibility of using climate

measures to experiment with organizational taxonomies. Given its very molar level of analysis, this chapter takes us to the interface between sociology and psychology--what Etzioni (1961, p. xiii) has called "middle range theory."

A Sociological Taxonomy of Work Environments

Sociologists have invested far more energy than psychologists have in developing conceptual bases of classification. Regarding the comparative analysis of organizations, Etzioni stipulated that

> The value of a comparison depends on the nature of its base; that is, on the nature of the variable or variables chosen to classify the units into subcategories for comparison. Such a variable must be selected on two criteria: It should be a set of related variables--that is, part of a theory; and it should lead to statements which are significant for the problems of the researcher [1961, p. xiv].

From these remarks, it is clear that Etzioni believed in no one 'right' taxonomy, but he did favor a two-dimensional compliance matrix. First, Etzioni (1961) classified organizations by their source of power--coercive, remunerative, and normative. His second basis of classification was participant involvement--from alienative (strongly negative), to calculative, to moral (strongly positive). Upon this 3 X 3 power-involvement matrix, three successful and congruent compliance types emerge most frequently: the coercive-

alienative (the coercive type), the remunerative-calculative (the utilitarian type), and the normative-moral (the normative type). Our discussion is confined to those social systems whose goal is the production of goods and services (i.e., utilitarian) because this discourse falls within the province of organizational psychology, a recent offshoot of industrial psychology whose research and theory concentrate primarily on work settings.

The psychologist might easily find fault with Etzioni's taxonomy. In his societal view, participant involvement was far too unpredictable--very negative and very positive involvement resulted from both coercive and normative power (cf. Etzioni, 1961, pp. 28-29). While a sociologist might not be troubled by such indeterminacy, it is the psychologist who inherits the task of increasing this psychological variable's predictability.

If the organizational psychologist refuses to accept "involvement" as a taxonomic given, and concentrates only on utilitarian social systems, what can he derive from Etzioni's classification schema? The derivative he ends up with is fairly straightforward: the utilitarian-coercive type, the predominantly utilitarian type, and the utilitarian-normative type (Etzioni, 1961, pp. 66-67). This taxonomy is presented in Table 6 along with the kinds of organizations Etzioni has

placed under each type.

TABLE 6

A Taxonomy of Work Environments Extracted From Etzioni's Complex Organizations

Utilitarian-Coercive		Predominantly Utilitarian		Utilitarian-Normative
ships, company towns, some early industries, some farms	peacetime military	blue-collar industries	white-collar industries	ideological unions, colleges & universities, voluntary organizations

There is one remarkable feature of this sociologically derived taxonomy--it is essentially the same as the taxonomy developed by psychologists and illustrated in our Table 5. It is this taxonomic continuum that mirrors the two major thrusts of organizational theory in the twentieth century: at the left pole are organizations approaching the classical-management paradigm, at the right pole are those approximating the human-relations paradigm. It is this taxonomy that will be explored in the pages to follow.

A Taxonomic Dimension Running From the Classical-Management to the Human-Relations Paradigm

In light of this taxonomy's importance to our discussion, it would be advisable to define with more precision the genotypic environments which anchor its two extremes.

The traditional (classical, bureaucratic, autocratic,

mechanistic, or theory-X) genotype finds its heritage in the sociological theory of Weberian bureaucracy, the early scientific-management theory of Taylor and Gilbreth, and the administrative theories of Fayol, Gulick, Sheldon, Mooney, and Reilley. Typifying this traditional philosophy, Fayol (1949) offered several basic tenets: an organization should divide its labor, subordinate the individual to the organization, stress order, discipline, remuneration, and chain of authority (pyramidal structure), and centralize its power and information.

In reaction to the entire spirit of these traditional principles, the modern (human-relations, democratic, participative, organic, or theory-Y) genotype has been developed primarily by behavioral scientists. The social psychology of Lewin, the Hawthorne studies of Elton Mayo, and the personality theories of Maslow, Rogers, and Goldstein set in motion trends of thought which coalesced into the human-relations school. Here, the worker came to be appreciated as a self-actualizing individual and the importance of informal social structures and processes was realized. This synopsis, though little more than a caricature, does educe some common denominator from among the writings of Mayo, Lewin, Warner, W. F. Whyte, Homans, Likert, McGregor, Argyris, Chapple, Arensberg, and others of the human-relations school.

The classical-management and human-relations schools have produced two opposing organizational paradigms and each school sees its own as the ideal work environment. Chris Argyris (1964), in his Integrating the Individual and the Organization, has conveniently provided a synthesis of these two paradigms:

> [W]e conclude that the mechanistic organization [the classical-management paradigm] is characterized by (1) decision making and control at the top levels of the organization, (2) an emphasis on unilateral management action, based on dependency and passive conformity, (3) the specialization of tasks so that the concern for the whole is broken down, (4) the centralization of information, rewards and penalties, membership, (5) the management being responsible for developing and maintaining the loyalty, commitment, and responsibility of all the participants on as high a level as possible, and (6) an emphasis on social status, intergroup and individual competition and rivalry. . . . The "organic organization" [the human-relations paradigm] is characterized by (1) decision making widely done throughout the organization, (2) an emphasis on mutual dependence and cooperation based on trust, confidence, and high technical or professional competence, (3) a constant pressure to enlarge tasks and interrelate them so that the concern for the whole is emphasized, (4) the decentralization of responsibility for and use of information, rewards and penalties, membership, (5) participants at all levels being responsible for developing and maintaining loyalty and commitment at as high a level as possible, and (6) an emphasis on status through contribution to the whole and intergroup and interindividual cooperation [1964, pp. 184-185].

These two organizational paradigms are actually the polar opposites of a taxonomic continuum that both psycholo-

gists and sociologists have arrived at independently (cf. Tables 5 & 6). Furthermore, this taxonomy has been consensually validated by numerous theorists (e.g., Argyris, 1964; Barnes, 1960; Bennis, 1959; Likert, 1967; Litwak, 1961; McGregor, 1960; Shepard, 1956, 1959). Finally, it also has a tremendous theoretical importance and brings together a set of conceptually related variables. It would seem, then, that this taxonomy provides the social scientist with an extremely attractive basis for differentiating total work environments from one another.

Unfortunately, this basis for comparative analysis has not been immune to criticism. Some sociologists have argued that it is unfeasible to use total-system variables. If valid, their attacks carry far-reaching implications, discouraging organizational research at molar levels. Because of this, we will weigh those criticisms very carefully.

Conceptual and Empirical Attacks on the Classical-Human Relations Taxonomic Dimension

Hall's (1963) attack. Hall attempted to measure the degree to which an organization could be classified, in the Weberian sense, as bureaucratic or nonbureaucratic. His study is relevant here on two counts: first, unintentionally, his measure is one of climate because he assessed participant

perceptions of that bureaucratic quality; and second, his taxonomy parallels the classical-to-human relations schema upon which we focus.

In measuring only those organizational facets pertinent to a bureaucratic environment (e.g., division of labor, hierarchy, rules), Hall reported that bureaucracy is not consistently reflected across the different aspects of an organization. For example, a company might have a bureaucratic hierarchy, yet a nonbureaucratic system of rules. He contended, therefore, that it is impossible to classify an entire social system; instead, classification must take place on various subdimensional continua. Of course, if Hall is correct, subsequent researchers will be deprived of the utility and elegance inherent in total-system taxonomies.

Before we accept so severe a loss, we should hear the case for the defense. The "bureaucratic genotype" need not be some rigid, ideal form which social systems must either completely conform to or completely oppose because, clearly, actual organizations come in any variety of forms. Rather, "bureaucracy" can be treated as a quality, its presence in a particular system becoming a matter of degree instead of an 'either/or.' If we adopt this view, then Hall's measure could be summed across its different subscales to yield a continuous bureaucracy score.

Still, to justify summing across different subscales, one must assume that they all share a common core or factor--in this instance, the attribute of bureaucracy. Hall argued that no such common core prevails, his evidence being the non-significant intercorrelations between six bureaucracy subscales (1963, p. 37). To begin with, Hall should not have been surprised by these low correlations since he attempted to eliminate scale interdependency through pretesting (1963, p. 35). His very method tried to insure the absence of a common core (cf. Gold, 1964, for an elaboration on this point of contention). But even despite 'rigged' scale independence, Hall confessed that organizations tend to be <u>either</u> high <u>or</u> low on <u>all</u> scales:

> It should be noted that total independence of scales was not achieved. . . . It appears to be almost impossible to eliminate all such interdependence since the dimensions under study are in fact parts of a whole, the organization [1963, p. 35f].

This tenacity of subscale interdependence bears witness to the existence of some common core among the items, a phenomenon which directly contradicts Hall's entire argument.

But Hall is finally refuted by his own correlation matrix. If scales share no common core or factor, then the average intercorrelation between them should be low or negative. However, Hall's scales have an average intercorrelation of +.35, resulting in a substantial alpha coefficient

of +.84. His mistake was in requiring statistically significant intercorrelations among all scales as proof of a common core, an absurdly stringent criterion. Hall, mishandling his results, had in fact created an internally consistent measure of bureaucratic quality. A general bureaucracy score could have been legitimately assigned to an organization, locating it on a taxonomic dimension somewhere between the bureaucratic and nonbureaucratic poles.

Pugh et al.'s (1968) attack. These investigators measured a series of bureaucratic structural properties. Then, applying factor analytic techniques, they discovered that such properties were actually multidimensional and, like Hall, concluded that an organization cannot be unidimensionally classified.

Pugh et al.'s rejection of total-system taxonomy was founded upon the success they had in extracting four orthogonal factors from an intercorrelation matrix among 16 of their scales. Their tacit assumption was that, if the taxonomy had any merit at all, then a unifactor solution would have presented itself. The conspicuous fallacy in this logic is the extreme improbability of ever uncovering a unifactor solution (cf. Harman, 1967, p. 105). Nunnally (1967, p. 350), agreeing with this, stated that at best there will be a dominant factor. By dismissing the whole concept

of bureaucracy in the absence of a unifactor solution, Pugh et al. betrayed some misunderstanding of factor analytic methods.

But the fact remains that they did extract four orthogonal factors from scales all purportedly tapping the same phenomenon. These factors, after graphic rotation, accounted for 33%, 18.5%, 13%, and 8% of the scales' total variance. We replicated their principal components analysis to find five factors explaining 36%, 17%, 13%, 8%, and 7% of the variance. The important point is that one dominant factor prevailed in both our analysis and theirs. Still, they insisted that the presence of several orthogonal factors subverts the concept of bureaucracy to a multivariate one. They mistakenly viewed each factor as a different and vital aspect of bureaucracy, and did this despite the obvious dominance of only <u>one</u> factor.

Returning to their original correlation matrix, there is further evidence of a common core among the 16 scales. The average intercorrelation was +.11, leading to an alpha coefficient of +.66. This alpha, being related to item-total correlations, signifies the presence of that general factor or common core already discovered (cf. Nunnally,

1967, pp. 304-305).[4]

But does this dominant factor represent some communality that can be interpreted as "bureaucratic structure"? It seemed to in our factor analysis because four of Pugh et al.'s major bureaucratic scales loaded very heavily on this dominant factor. In fact, there were only three scales out of 16 that loaded negatively on that major factor. And rather than using their analysis to vitiate the entire bureaucratic concept, Pugh et al. might have been better advised to clean up their scales with its help. In light of these results, one could easily contend that a dominant "bureaucratic" factor had emerged here.

In summary, it should be emphasized that we have no intention of challenging the possible utility of multidimensional analysis. But Hall and Pugh et al. seem to have argued that a unidimensional bureaucratic taxonomy is illegitimate. This we do dispute. Contrary to their claims, measures of

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[4] We hasten to caution readers that several technical weaknesses in this study render its results suspect. First, Pugh et al. obviously capitalized on chance by pulling out only the most "distinctive" correlations from a larger matrix of 2,016 coefficients (1968, p. 82). Factor analytic research, haunted as it is by shrinkage, would suffer under this procedure. Second, there is no way of ascertaining how representative the coefficients they happened to select were of the larger matrix. And third, Pugh et al. use an n of only 46 when working with 64 scales. This sample size invited disaster considering that Harman (1967) recommends at least 10 times as many subjects as variables.

this global system quality can have a common core and a dominant factor. Moreover, organizations are prone to behave as integrated wholes, falling either nearer to or further away from this bureaucratic paradigm. Hence, it seems permissible to sum across different subscales so as to arrive at one score--a total-system bureaucracy score. If anything, these attacks on the bureaucratic-nonbureaucratic taxonomy have inadvertently offered up evidence in its behalf.

Empirical Research Predicated Upon the Classical-Human Relations Taxonomic Variable

There is a meagre body of research that has already accepted molar comparative analysis as feasible and has gone on to utilize the classical-human relations typology. These studies all capitalize, consciously or unconsciously, on the total-system quality of climate. Unlike the majority of investigations into climate, these avoid reductionism and take advantage of global climate measures to gain access to very molar levels of analysis. The remainder of this chapter is devoted to gathering together such research.

Our survey is hampered from the outset by the scarcity of psychological research at so molar a level, but we hope to provide tentative answers to some important questions. Can total-system differences along the classical-human relations

continuum be operationalized? Does this taxonomy lead, heuristically, to new and testable hypotheses? And finally, is this particular total-system quality relevant to psychology in so far as actually explaining or influencing behavior?

Theory-X versus theory-Y climates. Going on the assumption that climate is predominantly determined by executive leadership style, Meyer (1968) selected a plant (the Mills plant) because its manager was an ardent disciple of McGregor's theory-Y principles (cf. McGregor, 1960). Then, using Litwin and Stringer's (1968) climate questionnaire, he compared this plant's atmosphere with another's (the Culver plant). As was predicted, the theory-Y manager had been more successful in fostering an achievement-oriented climate according to questionnaire results.

Meyer claimed that these results indicated McGregor's theory-Y climate was superior to other climates. He substantiated this point by noting that the theory-Y plant had been much more successful than its competitors.

However, Meyer's study is not really a comparative analysis in the full sense of the term because the other plant (Culver) was not preselected on the basis that its manager promoted an antithetical climate, i.e., a theory-X or classical one. Further, the nature of this field study does not preclude alternative explanations--for instance, that the

manager of the theory-Y climate might have been able to advocate a participative leadership style because of the plant's already existing climate or its previous record of success. Thus, no firm causal relationship was established between climate and performance or leadership style.

Still, his suggestion that the human-relations climate is superior warrants closer inspection.

Closed versus open climates. Barnes' (1960) field study, in a more thorough way, compared a classical environment with a human-relations one. His monograph included a careful description of two engineering departments and the companies to which they belonged. Department A was termed a "closed system" and in most respects fell near to what we have defined as the classical paradigm. Department B, roughly comparable in size and technology to A, was depicted by Barnes as an "open system," approaching our human-relations paradigm.

Barnes advanced and confirmed a number of hypotheses contrasting individual behavior within these two antithetical climates. Summarizing his findings, employees in the closed environment of Department A were found to be more status conscious, cliques often formed, and much competition existed. As anticipated, nothing of this sort was true of Department B. Furthermore, Barnes uncovered a negative relationship between job satisfaction and performance in the closed system, whereas

satisfaction was greater and positively related to performance in the open system. And while salary was related to indices of status (e.g., age, education, seniority) in the closed system, salary in the open system was more closely related to actual job performance.

Barnes has demonstrated that variance in total-system quality along the traditional-modern continuum relates to individual and system outputs. Furthermore, these outputs seem to be preferable in the human-relations (open-system) climate.

Exploitive-authoritative versus participative-group climates. Likert (1967) recounted seven field studies carried out under the auspices of the Institute for Social Research which also brought in results strongly favoring a human-relations climate. Instead of Barnes' closed- versus open-system classification, Likert used a continuum ranging from "exploitive authoritative" to "participative group." But his intent was the same--to create a dimension of comparative analysis along which total systems would distribute themselves.

Likert (1961, 1967) had developed a questionnaire based on workers' perceptions of their environment and, as we saw in Table 3, this instrument was very reliable. He selected several well managed companies and, using this questionnaire,

found that "virtually everyone" in middle and upper management prescribed a participative-group climate for their company.

Likert also told of a longitudinal study at the Weldon plant after it was taken over by the Harwood Manufacturing Company. Although the managerial staff was retained, many alterations were made--extensive engineering modifications, improved maintenance procedures, and the initiation of "earnings development" and leadership training programs. Likert's questionnaire was administered prior to the take-over and again two years later. There was a marked change in climate indicative of a radical shift toward participative-group atmosphere. This shift in climate was accompanied by a steady increase in productivity.

In a third field study, Likert examined the climate as perceived by middle and upper managers in "the most highly productive plant in one of the most successful companies in the United States." Through his questionnaire, the climate here turned out to be distinctly participative in quality.

A fourth field study explored climate changes in a company switching to the Scanlon plan. Likert had hypothesized that, given the nature of the Scanlon plan, a participative-group climate would assert itself. Questionnaire results from management confirmed this. Moreover, Likert observed

that the company also began extending itself into international trade, its sales volume grew 33% in one year, and over the same period earnings rose by 84%.

Three field studies completed Likert's impressive array of evidence on the participative climate's superiority. All three studies called attention to the marked improvement in labor relations after companies had undergone a change toward participative-group atmosphere.[5] In Likert's words,

> Effective problem solving replaced irreconcilable conflict. Differences did not become formal grievances because they were solved at the point of disagreement. New contracts were negotiated without strikes and without work stoppages. Both companies and union members have derived substantial financial benefits from the improved relationships [1967, p. 44].

Glancing back over Likert's seven studies with a critical eye, one suspects that he has overstated the case in favor of his participative-group paradigm. Minor instances of hyperbole are evident even in his graphs--e.g., he elongated the productivity axis of a figure depicting the Weldon plant's output, giving the exaggerated impression that increases were no less than astronomical (cf. 1967, p. 37). In that same study, Likert failed to point out that while the climate was becoming more participative-group, many other changes took

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[5] More detailed reports on two of these investigations appear in published form elsewhere: Likert, 1961; Morse & Reimer, 1956; Seashore & Bowers, 1963.

place which might also have accounted for increases in output, yet which had little to do with the participative-group atmosphere (e.g., the earnings development training, the more sophisticated engineering of jobs). This same criticism holds true for the increased productivity witnessed in the Scanlon plant, not to mention possible Hawthorne effects which might have inflated output levels in both studies.

Likert's pro-participative bias is clearly reflected in his questionnaire, severely injuring the integrity of almost all of his research (cf. Appendix I). All in all, Likert failed to maintain the necessary scientific impartiality toward his participative-group paradigm. Notwithstanding these criticisms, however, his work has done much to enhance the reputation of the human-relations model of total-system design.

Classical versus human-relations versus human relations-achievement oriented climates. In further support of the human-relations model, Litwin and Stringer's (1968) study simulated three business firms, each composed of 15 students from the Harvard Business School and a president who was one of the research staff. The members of these three groups were matched on a number of traits and they all participated in a business game, building 'radar equipment' from erector set materials, marketing it, and vying for government con-

tracts. Competition was intense and the game demanded co-operation and coordination among the team members.

Litwin and Stringer's major experimental control was accomplished by manipulating the leadership styles of their stooge presidents. In this way, the investigators tried to mold three distinct climates: Organization A (British Radar) was designed to be authoritarian so as to fall more toward the classical pole of the taxonomic continuum discussed in this chapter; Organization B (Balance Radar), governed by more participative leadership, was intended to fall more toward the human-relations pole; and Organization C (Blazer Radar), besides also having a participative leader, additionally stressed achievement.

Since Litwin and Stringer had manipulated only leadership style, what bearing did this study have on climate? Realizing the need to implicate climate as an experimental variable, they checked the atmosphere in each firm by administering a climate questionnaire and found the anticipated differences across their three atmospheres. This index of perceived climate was corroborated by independent observational data.[6] Thus, Litwin and Stringer had succeeded

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[6] Here and in several previous studies we have seen the results of subjective climate perceptions confirmed by more objective data. Thus, the quandry over whether climates should be objectively or subjectively measured seems to dissolve in the actual application of these different techniques of climate measurement (cf. Chapter 3).

in manipulating climate through leadership style.

Their main objective was to examine the effects of different climates on aroused motivation. The hypotheses were as follows:

> (1) The climate created in Organization A will stimulate or arouse need for power . . . .
> (2) Relative to the other two climates, the climate of Organization B will arouse the need for affiliation. . . .
> (3) The climate of Organization C will arouse the need for achievement . . . [Litwin, 1968, p. 176].

Using the Thematic Apperception Test to gauge aroused motivation, all these hypotheses were confirmed by statistically significant results--a remarkable phenomenon considering that these motivations were evoked in only a two-week period.

To investigate the influence of climate upon members' personality constellations, Litwin and Stringer administered the California Psychological Inventory two weeks prior to and immediately after the simulation. Although they advanced no hypotheses, three scale changes approached the .05 level of significance (viz., Self-Acceptance, Communality, and Responsibility). Their interpretation of these changes reads,

> Although the findings are tentative, the pattern seems quite clear. Members of the British organization [A] showed a consistent and unhealthy decrement in personality functioning. Their spontaneity and self-confidence was threatened by the authoritarian, structured climate in which

> they operated. They show evidence of tension (impatient, restless, conflicted) and withdrawal (moody, lazy, passive). Members of the Blazer [C] and Balance [B] organizations showed little change or growth in the same qualities of personality [Litwin & Stringer, 1968, pp. 133-134].

To complete their analysis, Litwin and Stringer turned to climate's effects on job satisfaction and performance. Interesting differences were found on both variables (cf. Table 7). Satisfaction was reported high in both Organization B and C while significantly lower in A. Organization C's performance excelled the other two firms' output in terms of new products, profits, and cost-reduction. Although Organization A had a superior quality reputation, this was explained by its never deviating from governmental specifications as stipulated by the game; but for this same reason, A also exhibited inflexibility when adaption was required.

The study just described does much to further the cause of total-system research. First, it has contributed substantial construct validity to measures of member-perceived climate. And second, the explanatory power of climate was demonstrated in relation to a number of psychological phenomena (e.g., members' personality traits, satisfaction, productivity).

Nevertheless, Litwin and Stringer's experimental design contains several flaws which temper our enthusiasm over their

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TABLE 7

Effects of Climate on Performance and Satisfaction

	Organization A (British)	*Organization B* (Balance)	*Organization C* (Blazer)
PERFORMANCE			
Profit; ( ) = Loss	$7.70	$(5.30)	$72.30
% Profit; ( ) = Loss	.81%	(.80%)	11.7%
No. of new products developed	4	6	8
Materials-Saving Innovations (estimates)	$0.00 [a]	$25.10	$43.80
Units Rejected by Government	0	1	4
SATISFACTION [b]	low (3.2) [c]	high (6.4)	high (5.8)

[a] British never deviated from government specificatons, and their material charges were used as a base figure.

[b] Satisfaction as described here was measured in response to the question, "How satisfying has your job and your participation been?" on a 9-point rating scale. after 7 days of work in the organization. The numbers shown are the mean scores for the 15 people in each organization.

[c] An Analysis of Variance shows that the means are significantly different from each other ($p < .05$), and further analysis shows that the Balance mean is significantly different from the other two.

Note.—Reprinted from an article by G. H. Litwin published in R. Tagiuri & G. H. Litwin's Organizational Climate: Explorations of a Concept, Harvard University, 1968, p.187.

results. They never do tease out the effects due to just leadership manipulation, leaving the reader to ponder over whether climate or leadership was the real independent variable.

But more important, they have made a methodological error in across-system comparison, a mistake worth special attention within the context of this chapter. Campbell et al. (1970) hinted at Litwin and Stringer's mistake here:

> Developing dimensions of environmental variation implies that differences among organizations along these dimensions are important. However,

> the treatment variables in the Litwin and Stringer study really represent modal types and not variations in a particular variable. The effects of differences in types can in no way be causally related back to the original taxonomic study [1970, p. 403].

This passage attempts to express a thesis central to our discussion: in order to make intelligible total-system comparisons, the same basis of comparison must be used for all systems. Litwin and Stringer failed to capture climatic variance along <u>one</u> taxonomic dimension common to all three firms--Organization C's achievement orientation, its distinguishing feature, was out of place on the continuum upon which A (classical) and B (human-relations) so neatly fall. By introducing a foreign taxonomic quality, one which could characterize either pole of the A-to-B continuum, the upshot of this misdesign is that their results are difficult to generalize upon.

If we untangle this by imposing only one taxonomic variable on their findings, we discover that B and C, the more modern climates, generally appear preferable to the classical climate in A. But to what degree can this finding be extended to other social environments? All their firms were similar in size (small), hierarchical structure (flat), member characteristics (Harvard University students), and task composition. To what degree would the seeming desirability of human-relations atmospheres hold up across

different simulated situations?

Conclusion

Considerable lip service is always being paid to environment as a major determinant of human behavior. Unfortunately, most social scientists refuse to deal with environment as a totality. As a result, we find ourselves for the most part incapable of providing empirical knowledge about holistic social settings. To help remedy this, the present chapter has focused on methods of studying total environmental systems--specifically, work atmospheres. Pausing to take inventory of the progress made thus far, we find that several very critical points have been established.

First, in order to engage in total-system comparisons, some comparative basis is needed. At the same time, it is also clear that there are many possible bases of taxonomic analysis, so that adherence to any one is as arbitrary as is theory or science itself in the final evaluation.

Second, one taxonomic variable has dominated the scene, a continuum running from the classical-management (bureaucratic) genotype at one pole to the human-relations (modern) genotype at the other. This taxonomy is theoretically significant, entails a conceptually homogeneous set of variables, and has been clearly defined through the consensual

validation of many theorists.

Third, we have supplied evidence that criticisms of this taxonomic schema seem to be engendered by conceptual confusion and misinterpretation of empirical data. Critics argue that it is absurd to force any and all organizations into rigid genotypic molds. In response, we have pointed out that this is not necessarily the taxonomist's aim. Rather, a taxonomic dimension can be viewed as one quality of environment and treated as a continuous variable--an attribute whose presence or absence is a matter of degree and does not preclude the presence of other dimensions.

Fourth, when instruments are designed to operationalize taxonomic qualities of environment, they turn out to be measures of climate both by definition and in appearance. So it is climate which becomes the central, synthesizing operationalism for handling global environmental quality.

Fifth, these climate measures exhibit certain properties which silence criticism. They are internally consistent (Hall, 1963; Likert, 1967; Pugh et al., 1968), they contain intelligible factor structures (Halpin & Croft, 1963; Pugh et al., 1968), and they relate meaningfully to many other variables.

Finally, the comparative studies we have looked at demonstrate the impressive heuristic value of the classical-human relations taxonomy. With its help, investigators are enabled to ascend to high levels of analysis and generate

original hypotheses about human behavior and system outputs. More specifically, this taxonomic variable has explained many phenomena--conflict, competition, assumed motives, participants' personality constellations, job satisfaction, performance, organizational success, innovation, and labor-management relations. In short, the introduction of this climatic taxonomy has enhanced psychology's power as a science.

On the basis of the limited amount of research at a total-system level, the reader might be left with one overriding impression--organizations embodying a more human-relations climate provide superior work environments. In contrast, the classical paradigm may appear to be plagued by conflict, competition, low job satisfaction, poor individual performance, deterioration of members' personalities, and a host of other difficulties. But is this universally true? Is the human-relations climate unequivocably superior for <u>all</u> organizations? And if not always utopian, when and where does the modern paradigm become dysfunctional?

> It is neither meaningful nor useful to promote normative, one-sided theories intended to account for all organizational situations. There is good evidence that organizational behavior is the outcome of a variety of highly conditional and highly contingent relationships and situations. Future theory will need to build on the foundations of those premises [Lichtman & Hunt, 1971, pp. 291-292].

CHAPTER 5

Some Obstacles to the Utopia of Human-Relations Climate: Toward a Contingency Theory

By availing themselves of the total-system perspective of climate research, a few investigators have succeeded in crystallizing perhaps the most salient issue confronting organizational theory, planning, and administration--that is, whether to design work environments upon traditional principles or upon modern principles. Meyer, Barnes, Likert, and Litwin and Stringer have all performed comparative analyses which yielded a common finding--the human-relations design appears superior to the classical in virtually every respect.

Despite these partisan results, there is less than unanimous agreement as to the utopian quality of human-relations environments. We find instances where commentators have promoted its antithesis (e.g., Leavitt, 1962;

McMurry, 1958). More recently, Campbell et al. (1970, Chapter 17) questioned the assumptions underlying theory-Y management. Even some exponents of the modern school have made passing mention of the limitations of their ideal work climate (e.g., Argyris, 1964, pp. 193-201; McGregor, 1960, pp. 31, 126). But without any empirical proof to the contrary, the human-relations philosophy still goes unchallenged in the literature of total-system research. So books like The Human Organization (Likert, 1967) continue with impunity to recommend the modern design for all organizations.

In recent years, few have recommended classical design principles. This is in part due to a noxious cloud which hangs over the traditional model--its supposed utter disregard for subordinates. To accept this Machiavellian stereotype is a reductio ad absurdum of any attempt to justify classical principles. However, Stanton (1960) went a long way in dispelling that myth--after comparing theory-X and theory-Y companies, he found that "authoritarian" leaders were not significantly more inconsiderate than their "democratic" counterparts in the other company. Stanton has made a most valuable point: the brutal, totalitarian image so often conjured up by the classical paradigm is not necessarily one of its axiomatic features.

After removing this stigma, can we say the classical

model is 'as good as' the human-relations model? The research surveyed in Chapter 4 would hardly encourage such a proposal. But R. A. Katzell has maintained a unique posture in the face of increasing enthusiasm over modern principles--he has advocated the adoption of an eclectic approach. More than a decade ago, he remarked,

> [W]e are being asked to help design and redesign the very fabric of the industrial organization . . . .
>
> But in meeting this challenge, what is the master plan or blueprint we should use[?] . . .
>
> As you well know, students of organizational concepts have typically classified the extant master plans or theories into two broad categories. One of these has been variously labeled as traditional, classical, mechanistic, bureaucratic, autocratic, or "Theory X." The other has been called modern, human relations, democratic, participative, or "Theory Y.". . .
>
> The main question of present concern is to what extent we can allow ourselves to be guided by these theoretical positions in our future efforts at organizational design. . . .
>
> My own conclusion from the evidence at hand is that we have at present no one conception or strategy of work organization that is unequivocally or universally superior to others, in terms of results achieved. . . .
>
> Instead, what is needed is a scientific, descriptive theory of organization which spells out the relationships among given dependent variables . . . . and various independent variables . . . under various situational conditions or parameters . . . [1962, pp. 102-104].

What Katzell has proposed we call a "contingency theory" because, in a total-system sense, the advisability of a human-relations or classical design is <u>contingent</u>--conditioned upon the particular situation within a given organization.

By this view, neither approach is to be universally recommended.

There are two logical questions at this juncture: When is one strategy advisable and the other not?; and, What are the moderating contingencies which impede the successful application of either master plan? Since total-system research has ignored these questions, we are forced to seek answers in studies at a less global level of analysis.

A Search for Situational Contingencies Moderating the Effectiveness of Human-Relations and Classical Climates

Our quest begins with and relies heavily throughout on studies of leadership effectiveness. There are several good reasons for this: (a) conveniently for us, the contrast between theory-X and theory-Y styles of leadership is a major theme in this literature; (b) leadership is a factor that seems to figure prominently in shaping overall climate (cf. Litwin, 1968; Litwin & Stringer, 1968); and (c) in concordance with our own thesis, contingency theory has achieved wide acceptance in this area. With this clarification made, we turn to a search for contingencies which may affect the appropriateness of total-system designs.

Production goals. One contingency which seems to moderate the success of leadership style is the production

emphasis within a particular organization. For example, the classic Lewin, Lippitt, and White (1938) study indicated that autocratic leaders can promote superior output in a quantitative sense although creativity seems to suffer in the process. White and Lippitt (1968) obtained the same effect provided close supervision is exercised. Morse and Reimer (1956) lend unwitting confirmation to this in that their subjects' productivity increased more under directive, highly structured supervision than under democratic supervision. Leavitt (1962) discussed comparable results gained in a laboratory setting. Finally, the authoritarian British Radar firm surpassed the democratic Balance Radar in terms of quantitative performance during Litwin and Stringer's (1968) simulation discussed earlier (cf. Table 7). In light of all this, it might be posited that the more a social system is productivity oriented, quantitatively speaking, then the more likely it would be to reflect or thrive under a classical climate.

Personalities of organization members. Haythorn (1958) examined the relationship between leader and follower authoritarianism and their behavior in small groups. He concluded that in homogeneous groups, where supervisor and subordinate shared equal degrees of authoritarianism, the morale is higher and there is less conflict. In a somewhat

related way, using Rotter's concept of "locus of control," Runyon (1973) turned up an interaction between employee personality and preference for leadership style. Externals, those who envision themselves as controlled from without, prefer more directive supervision. Vroom (1959, 1960) provided correlational evidence that employee productivity is also a function of the interaction between employee personality and supervision. He discovered that authoritarian subordinates produce more for autocratic leaders, while the reverse is true for egalitarian leaders. As for employee morale, Vroom again found that the same subordinates are more satisfied under autocratic leaders. In simulated business firms, comparable results have been obtained (Campion, 1968). On the basis of such studies, we are led to hypothesize that a classical climate can enhance an organization populated by authoritarian members.

Stress factors. There is also considerable room for speculation on the advantages of classical techniques in states of stress or emergency. Faunce (1958) observed that where machine breakdowns endanger the entire production schedule, totalitarian leadership and a pyramidal structure tend to assert themselves in order to resolve the emergency within the shortest period of time. Simpson (1959) has corroborated this. Further, people subjected to crisis

situations in the laboratory are found to be more susceptible to directive influence (Hamblin, 1958). And Mulder (1963) derived similar findings when he informed independent grocers that a large supermarket would be opening nearby. In an entirely different situation, grade-school children willingly choose omnipotent leadership in imaginary crisis (Polis, 1964).

Under stress, performance seems to be improved by a classical supervisory style. Fleishman et al. (1955) reported that as production schedules become more demanding, the rated effectiveness of foremen becomes increasingly correlated with a leadership style marked by low consideration and high initiating structure. Fiedler, Meuwese, and Oonk (1961) concluded that leaders who are aloof and structure-conscious tend to be more effective under stress than permissive leaders. Conversely, where less internal stress exists, leaders who are reputedly more human-relations oriented (hi LPC) are more successful (Fiedler, 1955, 1966; Fiedler et al., 1961; Godfrey et al., 1959; Hunt, 1967; Hutchins & Fiedler, 1960). Rosenbaum and Rosenbaum's (1971) data implied that subjects perform best under autocratic leadership when stress exists and that no differences in worker satisfaction occur as a result of autocratic versus democratic forms of supervision.

Several mini-theories have evolved, rationalizing the need for directive leadership and the greater acceptability of structuring in stressful situations (Bass, 1960; Korten, 1962). Thompson and Hawkes (1962) attempted to explain, from a molar, organizational perspective, why the classical design might be preferable and even necessary under stress. Psychoanalytically, Alexander (1955) and Devereux (1955) argued that people in stressful conditions regress to a dependence upon parental direction. Therefore, both theory and research suggest another possible impediment to the application of human-relations principles--under internal stress or external emergency situations, the classical climate may be more conducive to total-system functioning.

Task creativity and cognitive complexity. In an attempt to overcome the classical model's negative image, we have been focusing on certain mitigating circumstances which increase that paradigm's usefulness. Nevertheless, one of its glaring limitations must be recognized--the application of classical principles appears to hinder the performance of cognitively complex tasks and to stifle creative activity.

A closed-system (classical) climate adversely affected engineers, employees engaged in highly technical and problem-solving capacities (Barnes, 1968). In a similar atmosphere (British Radar), Litwin and Stringer (1968) witnessed fewer

new products being developed and fewer material-saving innovations. An autocratic leadership style has comparable inhibitory effects on creativity (White & Lippitt, 1968). And if Fiedler et al.'s (1961) "hi LPC" leader can be considered more democratic, he was found to be associated with increased creativity. Finally, in an experimental atmosphere which reduced perception of control and evaluation from others, higher scores on tests of creative thinking were attained (Adams, 1968). All this falls in line with Rogers' (1954) assertion that psychological freedom and safety are essential to the creative process.

The performance of creative or cognitively complex tasks also seems to suffer when the organization conforms to the classical structure (i.e., pyramidal, tall, centralized, etc.). Maier and Hoffman (1961) have shown that individuals employed in very hierarchical organizations do more poorly on creative tasks than individuals in flatter social structures. Another study has provided evidence that creativity is dependent upon the subordinate's ability to maintain a strong position vis à vis his supervisor, a position indicative of a less hierarchical system of authority (Hoffman et al., 1962). The gist of all this is most clearly contained in Guetzkow's (1965) depiction of innovativeness--it is negatively related to the presence of hierarchical

centralization and positively related to the absence of programming or rule orientation. Pursuing a similar line of inquiry, Shaw (1964) claimed that wheel communication (centralized, classical) is more efficient in the solution of simple problems, whereas the circle network (decentralized, human relations) is more efficient in solving complex problems. Finally, in a paper mustering a vast amount of empirical evidence, Perrow (1967) concluded, "Given a routine technology, the much maligned Weberian bureaucracy probably constitutes the socially optimum form of organizational structure [p. 204]."

Accordingly, it might be expected that where tasks cannot be routinized, are cognitively complex, or require creativity, an organization can be enhanced by human-relations design principles. In contrast, where tasks are capable of routinization and problem solving is structured, the classical design may be optimal.

Task-necessitated cooperation, coordination, and interaction. There are at least three other task properties that apparently moderate the appropriateness of traditional and modern patterns of organizational design. Roby, Nicol, and Farrell (1963), for example, reported that problems requiring cooperative effort are more quickly solved within a decentralized structure; however, when individuals have

to work fairly independently toward some common goal, problem solving is facilitated by a centralized structure. Essentially the same conclusions were drawn by Blau and Scott (1962) from their survey of the literature on communication. They proposed that a hierarchical organization may be most effective where tasks must be coordinated because of the restriction to channeled communication processes, but that a nonhierarchical system is better adapted for producing new ideas. In a laboratory study, Deutsch (1949) found that group, as opposed to individual, incentives induce greater productivity in interdependent activities, although not in independent activities. Comparable situational factors moderate employee attitudes toward leadership styles, as Vroom and Mann (1960) noted:

> Employees in small work groups which were characterized by a great deal of interaction among workers, and between workers and their supervisor, and by a high degree of interdependence had more positive attitudes toward equalitarian leaders. On the other hand, employees in large work groups, in which opportunities for interaction among workers, and between workers and their supervisor, were greatly restricted and in which individual employees were highly independent, were found to have more positive attitudes toward authoritarian leadership [1960, p. 125].

Given these widely scattered bits of evidence, we are led to predict that <u>where the task itself isolates workers either geographically or psychologically</u>, <u>where task-related cooperation is not necessary</u>, <u>but where the workers' various</u>

activities must be coordinated to move them toward some common objective, then the classical paradigm becomes more appropriate than the human-relations paradigm.

Organizational size. Returning for a moment to the Vroom and Mann study, there is some indication that group size is positively related to an accepting attitude toward authoritarian leadership. McGregor's (1960, pp. 119-123) critique of the Scanlon plan lends support to Vroom and Mann's findings. Successful application of the Scanlon plan, comparable in many ways to the human-relations model, is usually limited to small companies which are not highly routinized by automation and where technology and expertise do not impose psychological rifts between workers. With regard to size alone, it has been observed that supervisors in larger stores tend to be more directive (Worthy, 1950) and that more favorable attitudes toward direction and control exist in larger groups (Hemphill, 1950). Moreover, as group size increases, there also appears to be a decrease in member participation (Dawe, 1934; Indik, 1961; Miller, 1951). Consequently, we are inclined to speculate that large organizational size, high need for task coordination, low task interdependence (or cooperation), and low task interaction all constitute parameters within which the classical quality of work atmosphere may be more suitable.

In essence, what we have done is to sift through the literature, particularly leadership studies, and come up with a set of contingencies. We are postulating that where these contingencies vary, so too will the appropriateness of total-system design.

Other Contingency Formulations

Several prominent social scientists have been thinking along parallel lines. Their work can perhaps lend some perspective to this discussion.

Vroom and Yetton's contingency model for decision making. Vroom and Yetton (1972a, 1972b) have recently undertaken a comprehensive investigation of the situational factors influencing variations in participative decision-making style. Using Flanagan's critical-incident technique, managers were asked to describe a problem which they actually had to confront, the degree of participation they allowed in its solution, and the situational parameters operating at the time of the incident.

Without going into too much detail in our review, Vroom and Yetton concentrated on 10 contingencies which they saw as influencing the amount of participation used by managers: the time in which the solution had to be arrived at; the quality of the solution necessary; the information possessed

by the manager; the information possessed by the subordinates; the probability that subordinates would accept an autocratic decision; the trustworthiness of subordinates; the degree of conflict anticipated among subordinates in arriving at a solution; the necessity of subordinate acceptance; the degree to which the problem itself was structured; and the leader's own preferred style or PLP.

Many of these contingencies bear a strong resemblance to our own. For instance, their quality requirement and problem structure are akin to our more general factors of goal emphasis (quantity vs. quality) and the task's cognitive complexity. The necessity of subordinate acceptance, as they treat it, is pertinent to our contingencies of task coordination and task cooperation. As Vroom and Yetton point out, there is a class of problems where workers' acceptance of the solution (cooperation) is not mandatory, but where compliance (coordination) is important (cf. Maier, 1970). Their parameters of time, trustworthiness, and conflict have direct bearing on our contingencies of internal and external stress--where decisions must be made quickly, where subordinates are untrustworthy, and where potential conflict lurks, it is natural to assume that stress exists.

We have avoided any mention of their "prior probability of acceptance" contingency because of its admitted complex-

ity (Vroom & Yetton, 1972a, pp. 27-29). But our reservations about their study go a bit deeper than circumventing one contingency. What relationships they did discover between managers' accounts of their own behavior and their descriptions of contingencies may be artifactual. As Vroom and Yetton (1972b, p. 46) confessed, if a leader behaves in a certain way, he is more than likely predisposed to describe any contingency as conducive to his behavior. Furthermore, they relied solely upon managers' self-reports, thus arousing the suspicion that the relationships they reported exist only in the minds of their subjects.

Still, insofar as Vroom and Yetton's theorizing converges with our own, they consensually validate our speculation that a set of factors moderates participative (human-relations) versus nonparticipative (classical) management practices. But more than this, they have suggested a contingency we had overlooked: the amount of information possessed by subordinates and supervisors. Unfortunately, the very allocation of information resources within an organization is confounded by the climate--the classical atmosphere is characterized by depriving subordinates of information. Not so confounded by the classical-human relations quality of climate is the contingency of task feedback for, regardless of climate, certain tasks provide

more or less privileged information to the performer. Therefore, given tasks which provide little private feedback to the worker, we would anticipate that a traditional climate will be more functional.

Katzell's total-system contingency theory for organizational design. While Vroom and Yetton concerned themselves only with decision-making strategies, Katzell (1962) was probably the first to broach a total-system contingency model. He went so far as to lay out five situational parameters (cf. Lichtman & Hunt, 1971, pp. 283-285) which he felt might moderate the usefulness of classical versus human-relations policies and practices:

> What aspects or parameters of the situation should be looked into? . . .
>
> 1. The first one that I wish to mention is size, defined in terms of the number of interdependent members in the group or organization. . . .
>
> 2. Degree of interaction and interdependence of organization members is another set of situational variables that may be important in several ways. . . .
>
> 3. Personalities of organization members, including their motivations and expectations, constitute another type of conditioning variable that needs attention. . . .
>
> 4. The degree of congruence or disparity between the goals of the organization and that of its employees is a fourth factor that we may posit as affecting the consequences of various policies and practices. . . .
>
> 5. My fifth moderating parameter has to do with who in the organization has the necessary ability and motivation to take action that will further its objectives [1962, pp. 105-106].

All the factors recognized by Katzell as critical find some

expression in our own contingencies. Obviously, his first three are equivalent to four that we have isolated (i.e., size, task interaction, task interdependence, and member authoritarianism). His fourth parameter of goal congruence, where absent, would fall under what we have labeled as internal stress. The last factor Katzell touched upon, the loci of expertise and motivation among members, has also been accommodated by our mention of task routinization and cognitive complexity--where these loci are not among subordinates, it is likely that their tasks would be routinized and cognitively simple. Thus, it is evident that there is extensive parallelism between Katzell's speculations and our own.

Restrictions Argyris placed upon the application of his own human-relations principles. Several years after Katzell's article appeared, Argyris (1964) published a theoretical treatise which strongly advocated the design of social systems around human-relations strategies. Despite this, he retained enough scientific objectivity to admit that there might be certain limitations to his own doctrine:

> We may hypothesize that the pyramidal [classical] strategy should be used in the following situations.
> 1. When time is of the essence and a decision must be made that commits the organization in a direction already accepted by the subordinates. . . .
> 2. The pyramidal strategy may be effective when the decision to be made clearly falls into a category

> which, as a result of prediscussion and agreement among the participants, has been relegated to the pyramidal structure . . . .
>
> 3. A third function of the pyramidal structure may be observed when a decision must be made that does not significantly affect the distribution of power, reward and penalty, controls, work specialization, and centralization of information. . . .
>
> 4. The pyramidal structure may be effective when the number of people to be influenced is high relative to the space or time available to bring them together. . . .
>
> 5. Finally, the pyramidal structure may be more effective . . . if the individual participants do not seek psychological success, prefer to remain apathetic and noninvolved, and dislike the organization so intently that they are constantly striving to harm it [1964, pp. 198-200].

Our mention of stress converges on his first and fourth points, both of which apply in emergency situations. His fourth point could also imply large organizational size, a moderator which has been incorporated into our theory. Argyris' second and third propositions bear on the routinization plus the necessity for coordination of tasks, which again we have considered. Argyris' final point revolves around certain internal stress factors and the traits of the members themselves which, again, have received our attention. This correspondence between our theorizing and Argyris' is most reassuring--we concur that where the above contingencies operate, the likelihood of system effectiveness can be increased by classical or pyramidal strategies.

Etzioni's congruency theory. Sociologists, too, have

been furnished with a contingency model by Etzioni (1961). Underlying this model is the principle of congruency and, upon this principle, he has interwoven organizational goals, power means, participant involvement, and a multitude of other variables into three integrated, congruent patterns--the coercive, the utilitarian, and the normative compliance types.

> Congruent types are more effective than incongruent types. Organizations are under pressure to be effective. Hence, to the degree that the environment of the organization allows, organizations tend to shift their compliance structure from incongruent to congruent types and organizations which have congruent compliance structures tend to resist factors pushing them toward incongruent compliance structures [1961, p. 14].

Etzioni's work culminated in the realization that the effectiveness of these congruent structures is, to a large degree, contingent: "[I]t is clear that personnel and methods of supervision and control which are appropriate to one type of organization (e.g., a business corporation) cannot usefully be transferred in their entirety to another type (e.g., hospitals) [p. 296]."

In a general sense, Etzioni's contingency schema resembles our own. But there is another fundamental similarity--we share Etzioni's conviction that congruent systems are more functional than incongruent ones. In reexamining the contingencies we posit as conducive to either

traditional or modern climates, it becomes evident that they are congruent with those atmospheres.

The salutary effects of congruency have received some empirical confirmation. According to Vroom and Mann (1960), a leader whose style (e.g., autocratic) is consonant with the milieu's structural properties (e.g., pyramidal) seems better able to elicit positive attitudes and behavior from his subordinates. Woodward (1965), with her technological classification schema, found system effectiveness explained by a congruency formulation. Frederiksen (1966) found that performance is not only more predictable, but also superior when subjects work under a homogeneous climate (cf. Frederiksen, 1968). The beneficial effects of simulated businesses which maintain consistent climatic conditions are further demonstrated by Litwin and Stringer (1968). In view of this, we can speculate that, regardless of whether the climate is traditional or modern, it will be preferable when homogeneous.

Conclusion

Looking back over this assortment of theory and research, what have we gleaned with respect to the possible limitations of the human-relations climate and the possible advantages of

its conceptual antithesis, the classical climate? Contrary to the impression we were left with at the end of Chapter 4, the traditional design may be more advantageous where the following contingencies prevail:

Organizational Goal Content

1. Where the emphasis is on quantity rather than quality: cf. Leavitt, 1962; Lewin et al., 1939; Litwin & Stringer, 1968; Morse & Reimer, 1956; White & Lippitt, 1968.

Organizational Task Characteristics

2. Where there is a high task-required coordination: cf. Argyris, 1964; Blau & Scott, 1962; McGregor, 1960; Roby et al., 1963; Vroom & Mann, 1960; Vroom & Yetton, 1972a, 1972b.

3. Where tasks are low in interdependence: cf. Blau & Scott, 1962; Deutsch, 1949; Katzell, 1962; Roby et al., 1963; Vroom & Mann, 1960; Vroom & Yetton, 1972a, 1972b.

4. Where there is low task-related interaction: cf. Katzell, 1962; McGregor, 1960; Vroom & Mann, 1960.

5. Where tasks are susceptible to routinization: cf. Adams, 1968; Argyris, 1964; Barnes, 1960; Fiedler et al., 1961, 1961; Forehand, 1968; Guetzkow, 1965; Hoffman et al., 1962; Maier & Hoffman, 1961; McGregor, 1960; Litwin & Stringer, 1968; Shaw, 1964; Vroom & Yetton, 1972a, 1972b; White & Lippitt, 1968.

6. Where high problem structure exists (tasks are low in cognitive complexity and creativity): cf. Contingency #5.

7. Where tasks provide little private feedback to performer: cf. Vroom & Yetton, 1972a, 1972b.

Organizational Size

8. Where the organizational unit is large: cf. Dawe, 1934; Hemphill, 1950; Indik, 1961; Katzell, 1962; McGregor, 1960; Miller, 1951; Vroom & Mann, 1960; Worthy, 1950.

Organizational Member Attributes

9. Where members' personalities are authoritarian: cf. Campion, 1968; Haythorn, 1958; Runyon, 1973; Vroom, 1959, 1960.

Organizational Stress

10. Where the organization is under high external stress: cf. Argyris, 1964; Bass, 1960; Faunce, 1958; Fiedler, 1955, 1966; Fiedler et al., 1961, 1961; Fleishman et al., 1955; Godfrey et al., 1959; Hamblin, 1958; Hunt, 1967; Hutchins & Fiedler, 1960; Katzell, 1962; Korten, 1962; Mulder, 1963; Polis, 1964; Rosenbaum & Rosenbaum, 1971; Simpson, 1959; Thompson & Hawkes, 1962.

11. Where the organization is under high internal stress: cf. Contingency #10.

Each of these contingencies, where present, should be looked upon as increasing the suitability of a classical climate, provided all other things are equal.

Due to the exploratory nature of this entire discussion and to the exceedingly complex structure of organizations, it would indeed be presumptuous to assume that we had exhausted all relevant contingencies by the list above. One omission immediately comes to mind--the "Zeitgeist" or cultural spirit of the era (cf. McGregor, 1960, p. 17; Sells, 1968, pp. 86-87). Although this variable's importance is obscured by its nebulous character and relatively minor fluctuations over time, it could well explain why a classical or human-relations climate might be more acceptable. Undoubtedly, the Middle Ages tolerated far more classical atmospheres in its social systems than are found in the

Twentieth Century (Etzioni, 1961, pp. 310-311). The entire organization is only a microcosm within the socio-historical macrocosm and, hence, may be subject to its influences.

We readily admit that our contingency theory is pure conjecture. Even though it is extrapolated from empirical research, that research was for the most part carried out at lower levels of analysis than climate. Too wide an inductive leap is made if we accept microanalytic findings as predictive of total-system phenomena. This is particularly true when we recall that, to date, total-system research has not supported a contingency model, but instead, has upheld the superiority of the human-relations paradigm without qualification. Therefore, the burden of proof rests upon us to demonstrate the validity of the hypotheses derived here. So the next chapter devises an empirical test of our total-system contingency theory.

> In experiments involving organizational theory and management systems, . . . a systems approach must be used. The organic integrity of each system must be maintained while experimental variations are being made [Likert, 1967, p. 123].

CHAPTER 6

Hypotheses and Method: An Empirical Test of the Contingency View of Systems Design

It is one thing to allege that the human-relations climate is not always the most appropriate, but it is quite another thing to demonstrate this empirically. Here, the contingency theory developed in the last chapter is translated into verifiable terms, thus laying the groundwork for an empirical test. Afterwards, the actual research design is described.

Operationalizing the Focal Constructs

One cannot overemphasize the importance of validly operationalizing our fundamental theoretical constructs. Is it possible, for example, to designate organizations as falling along a classical-to-human relations taxonomic continuum? In our opening chapters, considerable energy was devoted to establishing the construct of "organizational climate" as the one by which total-system qualities of

this sort could be operationalized. Our Profile of Organizational Climate has been developed to measure atmospheric quality. However, because climate research is still a methodological innovation, the psychometric properties of this instrument must be thoroughly examined. At the same time, our theory is built around 11 contingencies isolated in the course of the last chapter. Each of these variables must also be measured reliably and validly. Unless this is accomplished, we can proceed no further.

Two Major Hypotheses Derived from Our Contingency Theory

Assuming that these measures prove to be psychometrically acceptable, what would constitute a verification of the theory advanced in Chapter 5?

To reiterate, it is our belief that either the theory-X or the theory-Y climate can be more functional or more appropriate for a given organization, depending upon 11 particular contingencies. But what is meant by "more functional" or "more appropriate"? Perhaps the most accurate translation is "more adaptive in terms of total-system functioning." Yet how can one capture, operationally, the nuances of such a loaded phrase? Etzioni (1961, pp. 78-79) has distinguished two relevant models here: the effectiveness model and the survival model. Each of these

models leads to different operational criteria for successful system functioning.

Under the effectiveness model, "more adaptive" denotes being better able to attain formal goals (Etzioni, 1960; Kahn et al., 1956). Unfortunately, most systems do not have only one goal: at a very molar level, certain goals may operate (e.g., efficient use of natural resources, total-system output, effective interaction with other social systems), while at a less molar level other goals can apply (e.g., work-group output, interdepartmental harmony), while at a fairly atomistic level still other goals may be held (e.g., individual productivity, job satisfaction). And even at this atomistic level, employee effectiveness is an extremely complex, multivariate phenomenon (Brayfield & Crockett, 1955; Seashore et al., 1960). To confuse matters further, it is obvious that not all social systems have the same goals. Hence, goal attainment in any specific area cannot provide a common yardstick by which to compare the effectiveness of different organizations. In the absence of concrete, universal criteria, the social scientist becomes easy prey to the fallacy of scientism--ethical and aesthetic judgments are apt to creep into his claim that one system is more successful than another. In sum, the criteria problems which beset the effectiveness model discourage its use for

our purposes.

Taking a less treacherous path, we can easily ascertain what type of environmental design would be more effective in the eyes of organizational members. Our first hypothesis adheres to this strategy: depending upon those 11 contingencies outlined above, members should perceive either the classical or the human-relations climate as more effective.

It may be discovered that employees generally endorse a more theory-Y climate, although this prediction is insensitive to important interorganizational differences since it ignores the contingencies. Such a forecast is made on the basis of a fairly substantial body of research indicating that the human-relations milieu tends to be more satisfying for workers (e.g., Likert, 1961, 1967; Litwin & Stringer, 1968). It is further expected that this trend may be more pronounced among nonsupervisors than supervisors since, for one thing, nonsupervisors' enthusiasm over a participative climate is probably less restrained by the realities of the situation.

Turning now to what Etzioni has labeled the survival model, an alternative test of our contingency formulation avails itself. Caplow (1953) explained the survival model in this way:

> [I]t is a reasonable assertion that no organization can continue to exist unless it reaches a minimal level in the performance of its objective functions, reduces spontaneous conflict below the level which is disruptive, and provides

> sufficient satisfaction to individual members so that membership will be continued [1953, p. 4].

Given the common notion that organizations are open systems struggling for survival and adaption (cf. Berrien, 1968), a second major hypothesis follows: surviving social systems should actually exhibit either more theory-X or more theory-Y oriented climates depending upon the same contingencies proposed in Chapter 5. To these 11 contingencies we can add yet another--members' opinions with regard to what would make a more effective climate. Both common sense and a limited amount of research on leadership styles (Vroom & Yetton, 1972a, 1972b) suggest that such opinions might influence the actual quality of climate.

Beyond these two central hypotheses, various peripheral issues can also be considered. First, the prevailing climate should be seen as more effective by managers than by nonmanagers. This projection is made for several reasons: to a large extent managers are themselves responsible for the actual climate (e.g., Litwin & Stringer, 1968) and they tend to be more satisfied with the status quo than nonmanagers (Porter & Lawler, 1965).

Because managers have a greater involvement in total-system concerns than do nonmanagers and because they perhaps have a better overview of the system's dynamics, both major

contingency hypotheses are expected to be more strongly confirmed by the data they provide. It is also anticipated that managers may tend, more than subordinates, to describe their climates as theory-Y oriented at least in part because of that philosophy's social desirability in business today (cf. Etzioni, 1961, pp. 310-311).

Finally, it came to light in our last chapter that homogeneous or congruent climates may be more preferable than heterogeneous or incongruent ones. This, too, can be investigated. Such, then, are the considerations which guide us in designing the experiment now to be described in more detail.

Method

Climate measures. Our two major hypotheses revolve around two climate variables: (a) climate prescriptions (the climate members perceive as more effective), and (b) climate descriptions (the actual member-perceived climate). Both had to be operationalized in terms of and located on a taxonomic dimension running from 'classicalness' to 'human relationness.' Our Profile of Organizational Climate, found in Appendix II, was created specifically for this purpose.

As narrated in Appendix I, this instrument went through a rigorous developmental process to insure its content

validity. In that process, Likert's (1967) Profile of Organizational Characteristics was completely reconstructed. Under two sets of instructions, our questionnaire permitted subjects (Ss) to report their organization's climate (i.e., descriptions) and also to indicate what climate, in their opinion, would be most effective for their organization (i.e., prescriptions).

The Profile was composed of 32, 20-point bipolar scales, each with four anchoring statements. One polar statement was true of the classical genotype, the other polar statement was true of the human-relations genotype. For 13 of these 32 items, scale direction was randomly inverted in order to cancel out the formation of response sets. After pretesting this instrument on Ss with low reading levels, steps were taken to reduce its syllabic intensity and increase its readability without sacrificing the original content. Readability was assessed professionally at the eighth to ninth grade levels by the Dale-Chall and Fry formulae.

It was brought out in an earlier discussion about perceptual measures such as our own (cf. Chapter 3) that they share a common weakness--being subjective, they are susceptible to sensory distortion. To compensate for this weakness in the Climate Profile, Pugh et al.'s (1968) objective index of bureaucratic structure was incorporated, with slight

modification, into our design.[7] This index is reproduced in the first eight pages of Appendix IV. Its function was the same as our Profile's--to discriminate bureaucratic (classical) from nonbureaucratic (human-relations) systems--but its nonsubjective content provided an independent source of validation for the subjective climate descriptions obtained by our Profile.

Contingency measures. Our major hypotheses implicate 11 specific situational contingencies. To operationalize these contingencies, Ss were asked to describe them on a series of bipolar, 7-point scales: (a) quantity-quality of goal content, (b) high-low task-required coordination, (c) low-high task interdependence, (d) low-high task-related interaction, (e) high-low task susceptibility to routinization, (f) high-low task problem structure, (g) low-high private task feedback to performer, (h) large-small organ-

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[7] Those modifications included the elimination of two of Pugh et al.'s structural scales: (a) "centralization," because it had a poor loading on the dominant factor of bureaucracy and because it had questionable content validity; (b) "traditionalism," because it also loaded poorly on the same dominant factor and because, as a combination of the other scales, it added little new information. Pugh et al.'s "specialization," "standardization," "formalization," and "configuration" scales were retained and given equal weight in a final score computed from the total measure. For further discussion of Pugh et al.'s measure, see their article (1968) and our Chapters 3 and 4.

izational size,[8] (i) high-low member authoritarianism, (j) high-low external stress, and (k) high-low internal stress. All variables were measured by one scale except for member authoritarianism--it was operationalized by seven bipolar, 7-point scales, each embodying a major component of the authoritarian attitudinal constellation (cf. Adorno et al., 1950; Korman, 1971; Sanford, 1956). These contingency measures are contained in Appendix III.

All contingency scale-directions were prearranged so that if the major hypotheses were confirmed, then positive correlations between them and the climate measures would result. However, all these scales relied solely on the subjective reports of Ss; hence, they too were vulnerable to perceptual distortions. To guard our contingencies' integrity against this, each was independently validated by an organizational expert (cf. Procedure) who responded to the contingency-pertinent items found on the last three pages of Appendix IV.

Materials. A booklet was constructed from the Profile

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[8] Since some of the organizations studied were actually subsystems within a larger system, Ss were asked only to describe the size of the unit under ivestigation. Although "size" appears to be an extremely complex variable (Porter, 1963; Porter & Lawler, 1965; Thomas, 1959; Thomas & Fink, 1963), research has indicated that unit sixe may be a more potent variable than total-system size.

of Organizational Climate (Appendix II) and the contingency scales (Appendix III) which was given to each S. A cover page and instructions, also in Appendix II, explained the experiment as a doctoral research project. On this cover page the Ss' frame of reference was established by delineating the unit, office, department, plant, or company under investigation.

A second booklet consisted of the instruments intended to validate the questionnaire results--the adapted Pugh et al. measure and the objective contingency measures (Appendix IV). This booklet had essentially the same cover page as the first booklet, but was given to one expert informant in each focal organization.

Procedure. A total of 36 utilitarian organizations providing goods or services in and around the New York City area were approached and asked to take part in this project. Upper management or key members of the personnel department were contacted, the research was explained, anonymity was guaranteed to the firm, and they were promised access to group data on completion of the study. As standard operating procedure, representatives of the firm examined all questionnaires so as to insure their pertinence to that particular setting.

Twenty-three out of the initial 36 organizations agreed

to participate, but only 17 organizations finally provided complete data. Once admitted into the unit, the experimenter's strategy was "transitory participation" (cf. Scott, 1965, for the advantages of this strategy). A liaison between the experimenter and the organization selected Ss randomly, assured them anonymity, informed them that only 45 minutes to an hour of their time was needed to fill out the materials, and solicited participation on a purely voluntary basis. Kahn and Mann (1952) have termed this recruitment procedure "contingent acceptance." Further, Ss were allowed to complete the questionnaires at their leisure and return them in sealed envelopes to the liaison. In return for their cooperation, all Ss were offered summary data of the findings.

The liaison was also asked to distribute one questionnaire, composed of the material in Appendix IV, to an expert informant who was not exposed to the other materials. This individual had to be someone involved in administration and personnel functions who had extensive knowledge of payroll and personnel policies, organizational structure, official records, documents, and forms (e.g., an industrial engineer, a personnel administrator, an administrator of records and accounting). Here, too, a contingent acceptance technique was used and this expert was guaranteed anonymity. It was

he who provided the objective information which would later serve to corroborate the subjective responses of the Ss.

Several procedural factors reduced any suspicion of collusion between top management and the experimenter, thus lessening any intimidation of the Ss: (a) the experimenter identified himself as a student, (b) anonymity was assured, (c) only transitory participation occurred, and (d) contingent acceptance strategies were adhered to.

Organization sample. In selecting the organizations that participated, a purposive sampling technique (Cochran, 1963) was followed with four primary population parameters. First, by confining our study to firms within New York City and surrounding urban areas, geographical noise was reduced (e.g., urban vs. rural differences, Katzell et al., 1961). Second, because of the relatively small number of organizations surveyed, every effort was made to insure sample width on all major variables--at least one target system had to be either high or low on each of the independent and dependent measures. An organization's eligibility to participate on this basis was predetermined by the responses of expert informants. Third, the organization had to be large enough to supply a sample of 10 managers and 10 nonmanagers. Finally, organizational structures which, by their very composition, defied climatic study were avoided.

To elaborate on this last point, it is quite obvious that organizations come in a variety of patterns. There are almost endless permutations--units, offices, departments, branches, plants, divisions, subsidiaries, and companies in various configurations, often under different roofs and held together by the most tenuous of affiliations. In such organizations, subcomponents can differ dramatically in their quality of atmosphere. If Ss were randomly extracted from such subsystems, they would scarcely have anything in common. Therefore, the investigator was careful to study units which were 'under the same roof,' where Ss might at least have some chance of sharing a common environment. In order to reduce any ambiguity in the Ss' frame of reference, Ss were informed as to the unit under analysis before being asked to respond.

As the research progressed, it became evident that organization sample width was continually jeopardized by the tendency of only certain types of organizations to participate (i.e., human-relations types). Conscious of this subtle bias, the investigator resisted sample skewing by often spending months to gain entrance to systems that would have otherwise been inaccessible. In this way counteracting the only obtrusive biasing factor, the investigator judged the sample to be representative of the population which was purposively sampled.

Subject sampling within organizations. Only full-time employees in each organization were randomly contacted. This sample was stratified (Cochran, 1963) into supervisory and nonsupervisory levels, the supervisors being distinguished by their supervisory responsibilities and "exempt" status. Pretesting had shown that 10 supervisors and 10 nonsupervisors (sometimes referred to as subordinates) provided a sample size sufficient to yield stable measurements. In order to assure that this sample size was always attained, more than the minimum 10 Ss in each hierarchical group were sampled. Then, questionnaires containing errors were discarded or, where no mistakes were found, the excess was randomly eliminated.[9] The typical questionnaire rate of return fell between 70 and 80%. Only Ss having worked at least three months in the focal unit were accepted into the sample so that novices as yet unfamiliar with the environment would be barred from participating.

As with any survey-type research, one inherent source of bias limited a pure random sample of Ss--the 'hard core' who

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[9] Equal ns were insisted upon for several reasons. Primarily, the statistical tests carried out under Results are more sensitive when equal sample sizes are maintained and this minimizes the distortions that can occur when assumptions underlying parametric tests are violated (Boneau, 1960; Cohen, 1965, pp. 114-117; Li, 1964, pp. 147-148, 197-198). Almost as important is the avoidance of laborious and sometimes dubious mathematical calculations involved when working with unequal ns as opposed to equal ns.

refused to fill out questionnaires. And as with the organizational sample, subject sampling was influenced by a subtle undercurrent--the Ss' initial acceptance rate was noticeably higher in units characterized by a more human-relations climate.

The results of this experiment, therefore, were based on a purposive sample of 17 organizations, with 10 managers and 10 nonmanagers randomly drawn from each. The objective data used to corroborate these 340 Ss' observations were gathered from 17 expert informants, one representing each target organization.

CHAPTER 7

Results

Throughout this work, and especially in Chapters 3 and 4, a major emphasis has been placed on locating the appropriate levels of analysis for climate research. To avoid confusion, our unit of analysis is the total system when referring to an organization's climate and contingencies. Hence, the mean of its members' climate and contingency descriptions becomes the basic unit of analysis. But when referring to a S's judgment as to the most effective climate, the focus can be shifted to the individual's prescriptions.

This chapter opens with a brief account of the sample from which our results were obtained. Then a careful analysis of the reliability and validity of each experimental variable is undertaken. Finally, the two major hypotheses along with several peripheral ones are put to empirical test.

Sample Description

Seventeen organizations were studied: (a) the department of psychiatry in a large, private hospital, (b) the personnel department of a large, public transportation agency, (c) an educational TV channel, (d) an army service unit, (e) a large,

public bus company, (f) a small private school, (g) a private car sales and service dealership, (h) the nursing department of another large, private hospital, (i) a social service agency, (j) a lamp manufacturing plant, (k) a community settlement house, (l) the accounting department for a large airline, (m) one graduate department within a large university, (n) a small, privately owned import-export firm, (o) a unit of telephone technicians in a large company, (p) the executive personnel department for a large, international firm, and (q) a unit of telephone operators in a large company. It is evident that the organization sample was heterogeneous, but did the purposive sampling technique succeed in providing organization sample width on all major variables?

This can be answered by examining the distribution of the 17 units on each major descriptive variable. The total score of the Climate Profile (Appendix II), reflecting Ss' descriptions of their climates, runs from extreme 'classicalness' (32) to extreme 'human relationness' (640), with a neutral midpoint (336). The 17 units sampled had a grand mean of 305.7, somewhat below the scale midpoint (i.e., more classical). In terms of sample width, the distribution of unit means along this continuum is depicted by the upper dimension of Figure 1 (p. 123 here), ranging from the army

unit (213.2) to the small private school (388.6).

The 11 contingencies were described by Ss on a series of 7-point scales with a midpoint of 4 (Appendix III). Across all 17 units, there was a fairly wide dispersion of unit means on each contingency. These unit means, stratified into managerial and nonmanagerial ("subordinate") averages, are plotted along the X axis of the scattergrams in Appendix VII. There, only task-necessitated coordination, task interdependence, member authoritarianism, and external stress show slight traces of range restriction.

The grand means tabled in Appendix V provide a descriptive overview of the sample as a whole--its average climate and its average set of contingencies. After considering these data and the unit distributions discussed above, two important observations can be made: (a) purposive sampling did provide organization range on all the major sample features, and (b) no unreasonable sampling distortions were evident.

Assessing Climates

Considering the developmental stage of both climate research in general and the as yet untried Climate Profile in particular, it was necessary to submit our Profile to a battery of analyses. Unless the instrument exhibited

favorable psychometric properties, the entire research project was jeopardized. It should also be kept in mind that each analysis that follows potentially contributes to or detracts from the Profile's construct validity (Cronbach & Meehl, 1955).

Internal reliability. Since the Profile was designed to measure variability along one molar dimension of climate--a classical-to-human relations quality--its 32 items should be drawn from a common sampling domain. Cronbach's alpha (Nunnally, 1967, p. 196), calculated from Ss' climate descriptions, is indicative of item homogeneity: an average interitem correlation of +.346 was found, resulting in an alpha of +.94. The coefficient of nondetermination ($1-r_{xx}^2$) further indicates that only about 12% of the Profile's total variance arises from random error.

These results are important for two reasons. First, item homogeneity justifies the use of the Profile's total score as reflective of a commonly shared attribute among its items. And second, because of the fixed mathematical relationship between reliability and validity, the Profile becomes a more useful measure--if lawful functions do exist between it and other variables, its own unreliability cannot obscure them (Guion, 1965, pp. 31-33).

Factorial structure of the Climate Profile. A

principal components analysis was carried out on all 340 Ss' descriptive responses to the 32 Profile items (SPSS, Nie et al., 1970). Again, since every item supposedly taps the same theory X-theory Y taxonomic variance and since a high alpha coefficient was found, it is reasonable to expect one dominant factor, i.e., item loadings on one factor of +.40 or better (Nunnally, 1967, pp. 303-304). In Table 8, on the left-hand side, the direct principal axes solution is presented.

As hypothesized, the first factor is clearly dominant, with only four out of the 32 items having loadings of less than +.40. This factor explained 39.1% of the total variance as opposed to the second factor which explained merely 6.5%. Precisely the same analysis was replicated within the supervisory and nonsupervisory subsamples yielding the same dominant factor, thus enhancing the generalizability of these findings (cf. Kerlinger & Pedhazur, 1973, pp. 46-48).

Next, a varimax rotation further explored the factorial structure of the Profile. That solution can be found on the right-hand side of Table 8. Guided by simple-structure criteria (Thurstone, 1947), we used only items loading heavily on primarily one factor for interpretation. After much straining, it became apparent that little was to be gained by forcing conceptual distinctions between these five factors. Circumventing this impasse, supervisors and non-

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TABLE 8

Principal Components Matrices for the Climate Profile

Profile items	Direct Solution: Common Factor Loadings I (.255)[a]	II (.258)	III (.261)	IV (.264)	V (.268)	h^2	After Varimax Rotation: Common Factor Loadings I (.255)	II (.258)	III (.261)	IV (.264)	V (.268)
1	.79*[b]	-.04	-.08	-.26	-.08	.71	.53*	.26	.49	.31	-.16
2	.75*	-.15	.00	-.04	.10	.60	.60*	.38	.28	.12	-.11
3	.58*	-.01	.34	.25	.21	.56	.38	.62*	.05	-.02	.18
4	.73*	-.25	-.07	-.21	-.24	.70	.49*	.29	.33	.37	-.38
5	.80*	-.23	-.01	.01	-.15	.71	.58*	.41	.19	.33	-.24
6	.30	.44*	-.17	.15	-.43	.51	.08	-.02	.06	.66*	.27
7	.60*	.08	-.13	-.23	-.17	.47	.38	.12	.42*	.37	-.08
8	.58*	.06	.21	-.43	.01	.57	.20	.34	.63*	.11	-.10
9	.78*	-.08	.16	-.08	-.10	.65	.44	.50*	.33	.28	-.12
10	.67*	-.02	-.01	-.16	.32	.58	.57*	.28	.42	-.07	.04
11	.75*	.01	-.09	-.02	-.28	.65	.48	.28	.26	.51*	-.10
12	.65*	-.03	.16	-.11	-.24	.52	.29	.43*	.31	.37	-.14
13	.49	.16	.60*	.15	-.04	.65	.03	.74*	.15	.16	.21
14	.62*	.08	.23	.17	-.39	.62	.22	.52	.08	.55*	.01
15	.64*	.11	-.26	.14	.27	.58	.70*	.10	.16	.08	.23
16	.70*	-.04	.34	.02	-.24	.67	.26	.64*	.22	.37	-.09
17	.37	.47	-.01	-.52*	.15	.65	.10	-.02	.75*	.08	.25
18	.58*	.20	-.13	.48	-.21	.67	.48	.26	-.17	.52*	.28
19	.75*	-.16	-.32	.09	-.03	.70	.75*	.14	.12	.30	-.13
20	.72*	-.10	-.21	.14	.31	.69	.79*	.22	.13	.00	.07
21	.69*	.09	-.19	.19	.29	.64	.72*	.20	.14	.07	.25
22	.58*	-.05	-.25	.14	.02	.42	.60*	.12	.06	.22	.01
23	.61*	-.08	-.37	.16	-.03	.54	.67*	.03	.03	.29	-.03
24	.76*	-.09	-.13	.03	.19	.65	.71*	.28	.24	.09	.00
25	.55*	-.06	.33	.01	.25	.48	.33	.55*	.24	-.11	.06
26	.52*	.25	.11	-.37	.20	.53	.25	.22	.63*	.02	.14
27	.72*	-.07	-.11	-.09	.10	.56	.61*	.25	.32	.15	-.06
28	.74*	-.24	-.01	.10	.08	.62	.64*	.40	.11	.12	-.14
29	.52	-.15	.54*	.22	.09	.64	.21	.77*	.01	-.02	.01
30	.40	.52*	-.32	-.03	-.12	.55	.29	-.15	.30	.46*	.38
31	.14	.65*	.13	.37	.25	.65	.06	.16	-.01	.06	.79*
32	.16	.73*	.09	-.06	.01	.56	-.10	.03	.35	.25	.60*
Latent roots	12.51	2.07	1.83	1.51	1.37	19.29	7.32	4.30	3.09	2.74	1.84
Percent of Σ^2	39.1	6.5	5.7	4.7	4.3	60.3	22.88	13.44	9.66	8.56	5.75

Note.—The principal components solutions extracted only orthogonal factors with eigenvalues exceeding 1.00. This approach, known as "Kaiser's criterion," is most helpful when there are between 20 and 50 variables (cf. Child, 1970).

[a] The values in parentheses atop each set of factor loadings are criteria for significance of the loadings in that column (two-tailed alpha, $p < .01$). These are suggested by Burt and Banks (cf. Burt, 1952), taking into account the number of variables and factors involved in the analysis.

[b] Asterisks (*) denote the highest factor loading of each variable both under the direct and rotated solutions.

supervisors were separated and a varimax solution was obtained for each group. The results were very interesting: entirely different loading matrices emerged and, more importantly, the factors became interpretable.

From the managers' data, seven factors were extracted, the first two taking fairly distinct shapes--the warmth and openness of the leader's role vis à vis subordinates (cf. items 1, 2, 4, 23, and 28) and the leader's autocratic autonomy versus the constraints of democratic process (cf. items 15, 18, 19, and 20). From the nonmanagers' data, six factors emerged, the first three also being fairly intelligible--the power position of the subordinate in his role (cf. items 2, 15, 20, 21, and 28), the prevailing leadership practices (cf. items 3, 5, 13, 25, and 29), and peer relations (cf. items 8 and 17). These two distinct constellations of factors, it might be noted, seem appropriate to the concerns of the subgroups whence they were derived.

External reliability. Given that Ss from the same unit have a similar climate, they should agree with one another's responses to the Profile items. To gauge interobserver agreement, an intraclass correlation (Guilford, 1954, p. 395) was computed for each item. These are recorded in Table 9 and, clearly, a significant portion of response variance to all items is accounted for by unit membership--34% of the

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average item's variance was explained in this manner.

TABLE 9

Interobserver Agreement Among Unit Members in Their Descriptions of Climate

Profile item	MS_{bg} (df=15)	MS_{wg} (df=223)	F	$\sqrt{F}$	r_I[a]
1	82.93	6.29	13.19*	.60	+.36*
2	73.27	5.98	12.26*	.58	+.34*
3	45.23	6.49	6.97*	.46	+.21*
4	199.24	6.05	32.29*	.77	+.59*
5	136.75	5.23	26.15*	.73	+.53*
6	79.83	7.70	10.37*	.55	+.30*
7	35.95	5.39	6.62*	.46	+.21*
8	72.01	6.35	11.35*	.57	+.32*
9	145.02	6.30	23.04*	.71	+.50*
10	77.73	5.99	12.91*	.59	+.35*
11	52.05	6.53	7.97*	.49	+.24*
12	58.24	7.67	7.60*	.48	+.23*
13	99.17	6.15	16.12*	.64	+.41*
14	79.45	6.08	13.06*	.59	+.35*
15	40.19	5.56	7.22*	.47	+.22*
16	115.53	6.98	16.55*	.64	+.41*
17	103.96	6.91	15.34*	.63	+.40*
18	59.40	6.72	8.81*	.45	+.21*
19	115.13	7.41	15.54*	.63	+.40*
20	62.87	5.81	10.83*	.56	+.31*
21	67.45	7.81	8.63*	.51	+.26*
22	76.70	14.90	5.15*	.40	+.16*
23	57.19	7.67	7.27*	.47	+.22*
24	102.92	5.74	17.94*	.66	+.44*
25	72.15	7.25	9.95*	.54	+.29*
26	47.55	6.05	7.87*	.49	+.24*
27	77.22	6.75	11.44*	.57	+.32*
28	106.78	6.62	16.66*	.63	+.40*
29	234.29	4.60	50.94*	.83	+.69*
30	72.97	7.78	9.38*	.53	+.28*
31	45.63	6.73	6.78*	.46	+.21*
32	70.50	6.63	10.63*	.56	+.31*
				$\bar{X}r_I$ =	+.34
Profile total	35339.78	2403.18	14.71*	.63	+.40*

Note.--Analysis of variance outputs (mean square and F values) were obtained using a series of multiple regression analyses (BMD03R, Dixon, 1970). Organizational membership was dummy coded creating 16 (k-1) independent variables, while Ss' responses to each of the 32 Climate Profile items and the total score were treated, separately, as dependent variables (cf. Cohen, 1968; Kerlinger & Pedhazur, 1973).

[a]The intraclass correlation coefficient, unlike the Pearson r_{xy}, directly yields the proportion of variance explained by the independent variables. It does not need to be squared.

*$p < .01$, critical two-tailed value of F at 16/200 dfs is 2.09.

More notably, there is also interobserver agreement on where the global climate falls along the taxonomic, theory X-theory Y continuum (i.e., the total Profile score). Significantly, 40% of the Ss' total-score variance was accounted for

by organizational membership (cf. Table 9, bottom). Splitting the supervisors and nonsupervisors, interrater agreement on molar climate within each group is also significant (r_i = +.37 for supervisors and +.36 for nonsupervisors, df = 16/153, $p < .01$).

Approaching the Profile's consensual validity from another angle, hierarchical groups from the same unit should be more in accord about their climate than comparable groups taken from dissimilar units. This was tested by correlating the mean Profile total of supervisors ($\bar{X}_{sup}$) with the mean of nonsupervisors ($\bar{X}_{sub}$) across the 17 units. A significant index of consensual validity was arrived at--+.89. Turning to the 32 Profile items, a similar coefficient was calculated for each. Again, there is strong agreement between managers and nonmanagers; except for one item, all coefficients were significant (cf. Table 10, "Consensus").

Notwithstanding the strong consensus between hierarchical groups found in Table 10, the Pearson correlations used there are blind to systematic or constant differences between the two groups across units. To compensate for this, a series of matched t tests were performed in order to pick up discrepancies between supervisors' and nonsupervisors' mean perceptions of climate. Four out of 32 items elicit a small, but significantly constant difference, while one item

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TABLE 10

Consensual Validation: Agreement Between Supervisors and Subordinates in Their Mean Descriptions of Climate

Profile item	Consensus		Systematic Differences		
	r_{wj} (df=16)	r^2_{wj}	$\bar{X}_{sup}-\bar{X}_{sub}$	t^a (df=16)	r^2_{pb} [b]
1	.82***	.67	10.26- 9.45	+2.27*	.24
2	.74***	.55	9.05- 8.99	ns	ns
3	.60*	.36	10.02- 9.99	ns	ns
4	.93***	.87	8.09- 9.18	ns	ns
5	.82***	.65	7.71- 7.45	ns	ns
6	.81***	.66	12.00-12.09	ns	ns
7	.52*	.28	10.18-10.44	ns	ns
8	.73***	.53	10.00-10.34	ns	ns
9	.87***	.76	9.32- 9.14	ns	ns
10	.83***	.69	8.67- 8.91	ns	ns
11	.62**	.38	9.24- 8.59	ns	ns
12	.78***	.61	9.54- 9.41	ns	ns
13	.86***	.74	13.11-14.82	ns	ns
14	.68**	.46	12.98-12.85	ns	ns
15	.73***	.53	7.83- 7.28	ns	ns
16	.77***	.59	10.10- 9.74	ns	ns
17	.78***	.61	12.04-11.05	+2.52*	.28
18	.47	.22	10.27- 9.22	ns	ns
19	.86***	.74	8.03- 7.09	+2.83*	.33
20	.85***	.72	7.58- 6.89	+2.19*	.23
21	.62**	.38	9.12- 8.51	ns	ns
22	.85***	.72	7.40- 6.86	ns	ns
23	.53*	.28	8.71- 8.52	ns	ns
24	.89***	.77	7.64- 7.35	ns	ns
25	.62**	.38	9.42- 9.28	ns	ns
26	.52*	.27	8.87- 8.26	ns	ns
27	.76***	.58	8.58- 8.20	ns	ns
28	.77***	.59	8.89- 8.43	ns	ns
29	.96***	.92	11.19-10.71	ns	ns
30	.71**	.50	10.81- 8.67	+5.49***	.65
31	.57*	.33	11.41-11.44	ns	ns
32	.76***	.58	10.12-10.25	ns	ns
	$\bar{X}_{wj}$=.74***	$\bar{X}_{wj}$=.56			
Profile total	.89***	.79	311.96-299.44	+2.37*	.26

[a] t ratios were calculated using matched pairs ($\bar{X}_{sup}$ vs. $\bar{X}_{sub}$) from each unit. Because of the high correlations between these pairs (consensus), the standard error of the difference between means was greatly reduced and the t test made more sensitive.

[b] Squared point-biserial correlations represent a special case--an index of relationship strength where individual differences between matched pairs are partialed out (cf. McNemar, 1962, pp. 101-102).

*$p < .05$.
**$p < .01$.
***$p < .001$.

creates a marked difference (item 30: subordinates see a large discrepancy between their pay and supervisors' pay, while supervisors see less of a discrepancy). For the Profile total, supervisors as a group tend to describe their global climates as somewhat more theory Y in quality than do nonsupervisors. The significance levels (t values) and

relationship magnitudes (r^2_{pb}) are recorded on the right-hand side of Table 10.

Although supervisor-subordinate differences are not extensive, subsequent hypothesis testing should take into consideration what differences there are. Therefore, separate analyses were carried out on the hierarchical subsamples when verifying the major hypotheses.

Finally, the degree of consensus between Ss and the expert informants gave yet another indication of external reliability. The mean Profile total for each unit places it along the molar classical-to-human relations continuum (Figure 1, upper dimension); the same units were classified along a bureaucratic-to-nonbureaucratic continuum by expert informants using Pugh et al.'s structural index (Figure 1, bottom dimension). Being conceptually similar, these two classification schemas were expected to correlate positively and, in fact, they do so significantly (+.86, cf. Table 11). Thus, Ss' climate descriptions, obtained through a subjective measure, are substantiated by expert informants using a more objective measure.

Three independent analyses give different perspectives on the external reliability of the Ss' climate descriptions. All indicate that workers enveloped by the same climate do describe it similarly.

Additional signs of construct validity. A less technical outcropping of the Profile's validity manifested itself when the results were presented to officials in each organization. Pitted against their common sense and intimate knowledge of the unit, our findings proved accurate. Leaving aside the possibility of a "Barnum effect," these officials even confessed to a further insight into their work environments.

Although every analysis so far tends to contribute to the construct validity of the Profile, Figure 1 and Table 11 offer perhaps the most compelling evidence on its behalf. The most important question is, of course, Does the Profile's total score classify organizations along the classical-to-human relations taxonomic continuum? To answer this question, the Campbell and Fiske (1959) multitrait-multimethod approach was used.

Convergent validity is demonstrated by the significant intercorrelations, circled in Table 11, among three methods of measuring the same theory X-theory Y trait: (a) the unit mean of Ss' total Profile scores, (b) the expert informants' reports on Pugh et al.'s bureaucracy index (Appendix IV), and (c) Etzioni's a priori utilitarian coercive-to-normative taxonomy (Table 6). As Figure 1 displays, the 17 units distribute themselves along these conceptually similar

20 Squares to the Inch

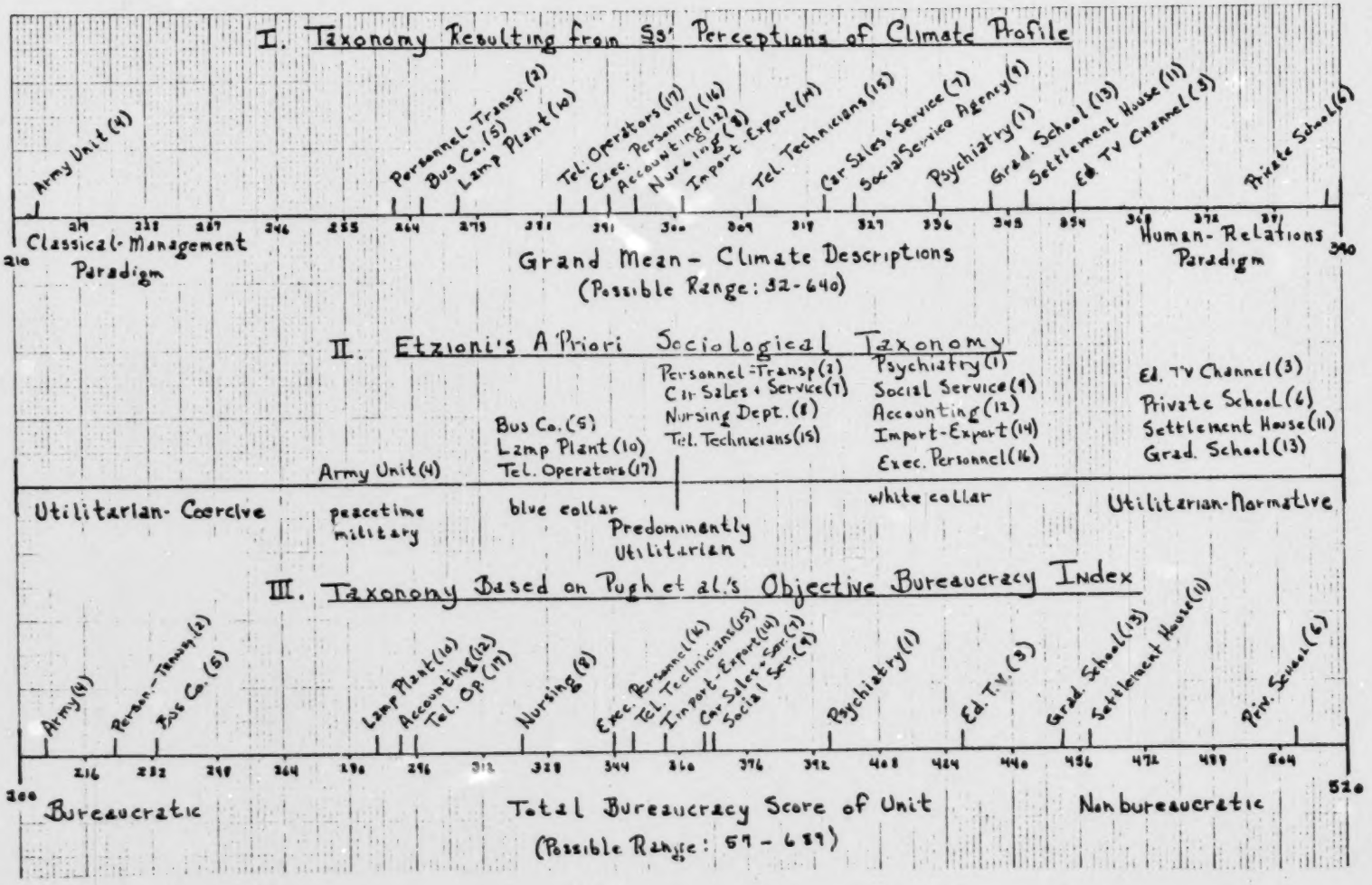

Fig. 1. The positions of 17 sample organizations within three separate taxonomies of work environment.

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continua in empirically similar patterns.

TABLE 11

Multitrait-multimethod Intercorrelation Matrix Between Conceptually Similar and Dissimilar Unidimensional Taxonomies of Work Environment

Method of Classification	Trait: Basis of taxonomy	Intercorrelations			
		1	2	3	4
1. Ss' total Profile description scores	Classical-to-human relations	—			
2. Experts' reports on modified Pugh et al. structural index	Bureaucratic-to-nonbureaucratic	.86***[a]	—		
3. Etzioni's a priori schema[a]	Coercive-to-normative	.86***[a]	.87***[a]	—	
4. Experts' reports	Unit size	-.52*	-.38	-.34	—
5. A priori schema[a]	Product-versus-service orientation	-.06	.05	-.12	.16

[a]These correlations reflect the patterns depicted in Figure 1.

[b]These classification variables, being a priori, were dummy coded in order to translate them into numerical form (Kerlinger & Pedhazur, 1973, pp. 102-109).

*$p < .05$, two-tailed test for df=15.
**$p < .01$, two-tailed test for df=15.
***$p < .001$, two-tailed test for df=15.

For discriminant validity, two conceptually dissimilar taxonomic traits were incorporated into Table 11: (a) unit size as reported by expert informants, and (b) product-versus-service orientations of the units. Because it has been hypothesized that theory-Y or nonbureaucratic organizations tend to be small (cf. Chapter 5), moderate negative correlations between size and the first three variables were expected. These correlations are shown in the solid boxes of Table 11 and meet with expectations. However, because the a priori distinction between product-versus-service orientation is conceptually independent of the other organizational traits, low relationships between it and the other

variables were expected. This is confirmed by the coefficients in the dotted boxes of Table 11. These results afford the Climate Profile strong convergent and discriminant validity.

Measuring Contingencies

Like the Climate Profile, each contingency scale was examined very carefully for its psychometric qualities. Again, in each analysis, the construct validity of these measures was at stake.

Member authoritarianism. This contingency, unlike the others, was operationalized by more than one item (cf. Appendix III). Because its seven items were all designed to tap the S's authoritarianism, both internal consistency and a dominant-factor structure were anticipated. Item homogeneity was encountered in an alpha coefficient of +.93. Further, a direct principal axes solution (SPSS, Nie et al., 1970) extracted the dominant factor hoped for--it explained 70% of the overall variance and all items loaded positively on it. Separate analyses were performed on the supervisory and non-supervisory subsamples with essentially the same results.

The external reliability of this measure was estimated by taking the unit mean of Ss' authoritarianism scores and correlating it with the expert informant's evaluation of those Ss. This correlation being +.88 (cf. Table 14, p. 129), the experts had independently corroborated Ss' self-expressed authoritarianism.

The 10 single-item contingency measures. There is, of course, no internal consistency or factor structure for single-item measures, but external reliability was expected. Interobserver agreement on each contingency was checked with the help of intraclass correlations. Table 12 contains these 10 coefficients, all of which are significant, along with associated mean-square and F values. Since 50% of the variance in Ss' descriptions of the average contingency was accounted for by organizational membership, there exists a substantial amount of interrater agreement concerning the 10 environmental contingencies.

Supervisors and subordinates in the same units, being exposed to the same contingencies, should yield group means that correlate when describing those contingencies. This is confirmed by a significant zero-order correlation for every variable (cf. Table 13). In short, the two hierarchical groups corroborate each other's perceptions.

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TABLE 12

Interobserver Agreement Among Unit Members in Their Descriptions of Contingencies

Contingency	MS_{ij} (df=15)	MS_{ik} (df=200)	F	$\sqrt{r_i}$	r_i[a]
1. Goals	12.14	.568	21.37*	.69	+.48*
2. Coordination	8.67	.583	14.89*	.63	+.39*
3. Interdependence	7.41	.701	10.59*	.55	+.30*
4. Interaction	16.98	.687	24.72*	.72	+.52*
5. Routinization	32.60	.853	38.22*	.79	+.63*
6. Problem structure	28.34	.682	41.50*	.81	+.65*
7. Private feedback	11.43	.733	15.58*	.63	+.40*
8. Unit size	55.43	.271	204.63*	.95	+.90*
9. _____[b]					
10. External stress	7.06	.586	12.05*	.58	+.33*
11. Internal stress	8.04	.615	13.09*	.59	+.35*
					$\bar{r}_i$ = +.50

Note.--Analysis of variance outputs (mean squares and F values) were obtained using a series of multiple regression analyses (3RDCOR, Dixon, 1970). Organizational membership was dummy coded creating 15 (k-1) independent variables, while Ss' responses to each of the 10 contingencies were treated as dependent variables (cf. Cohen, 1968; Kerlinger & Pedhazur, 1973).

[a]The intraclass correlation coefficient, unlike the Pearson r_{xy}, directly yields the proportion of variance explained by the independent variables. It does not need to be squared.

[b]Member authoritarianism, omitted here, was directly measured for each individual. Therefore, it is not meaningful to think of an intraclass correlation for this variable as an index of interobserver agreement.

*$p < .01$, critical two-tailed value of F at 15/200 df's is 2.09.

Because the zero-order correlations used in testing for consensus between hierarchical groups are insensitive to constant between-group differences, it was necessary to run a series of matched t tests to detect such differences. Therefore, Table 13 also contains the results of 11 t tests, one for each contingency variable. Despite the sensitivity of this statistical test (cf. footnote "a" to Table 13), only on three contingencies is there a small, but significantly

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TABLE 13

Consensual Validation: Agreement Between Supervisors and Subordinates in Their Mean Descriptions of Contingencies

Contingency	Agreement		Mean Scale Differences		
	r_{xy} (df=15)	r^2_{xy}	$\bar{X}_{sup}-\bar{X}_{sub}$	t^a (df=16)	r^2_{pb} [b]
1. Goals	.92***	.87	4.17-4.10	ns	ns
2. Coordination	.81***	.66	2.97-3.07	ns	ns
3. Interdependence	.80***	.64	4.01-3.96	ns	ns
4. Interaction	.92***	.85	5.14-4.96	ns	ns
5. Routinization	.94***	.88	4.09-3.77	+2.95**	.35
6. Problem structure	.97***	.94	4.00-3.68	+4.16***	.52
7. Private feedback	.89***	.79	3.94-3.89	ns	ns
8. Unit size	.99***	.98	4.67-4.65	ns	ns
9. Authoritarianism	.75***[c]	.56	3.69-3.61	ns	ns
10. External stress	.84***	.71	3.28-3.38	-2.37*	.26
11. Internal stress	.88***	.77	3.35-3.39	ns	ns
	$\bar{X}^c_{r_{xy}}$=.89***	$\bar{X}^c_{r^2_{xy}}$=.79			

[a] t ratios were calculated using matched pairs ($\bar{X}_{sup}$ vs. $\bar{X}_{sub}$) from each unit. Because of the high correlations between these pairs (consensus), the standard error of the difference between means was greatly reduced and the t test made more sensitive.

[b] Squared point-biserial correlations represent a special case--an index of relationship strength where individual differences between matched pairs are partialed out (cf. McNemar, 1962, pp. 101-102).

[c] Member authoritarianism was measured directly for each individual. Therefore, it is not meaningful to think of this coefficient as an index of consensus; rather, it indicates that both supervisors and subordinates within the same unit tend to exhibit comparable degrees of authoritarianism. For this reason, this coefficient has been omitted in the computation of $\bar{X}_{r_{xy}}$ and $\bar{X}_{r^2_{xy}}$.

*$p<.05$.
**$p<.01$.
***$p<.001$.

constant discrepancy between supervisors' and nonsupervisors' group means: supervisors see tasks as slightly less susceptible to routinization, the average problem's solution as slightly less clear-cut, and the organization as under somewhat more external stress.

Like the Ss, expert informants were also asked to describe each contingency. Correlations between Ss' and experts'

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reports provided yet another check on the accuracy of these measures and yield the significant coefficients in Table 14. Across all variables, experts corroborate the Ss' responses. Under three separate tests, then, the external reliability of the contingency measures stands up extremely well.

TABLE 14

Validity Coefficients Between Ss' Unit Mean Descriptions of Contingencies and Expert Informants' Reports

Contingency	r_{xy}	r^2_{xy}
1. Goals	.84***	.71
2. Coordination	.73***	.53
3. Interdependence	.80***	.64
4. Interaction	.90***	.81
5. Routinization	.88***	.77
6. Problem structure	.77***	.59
7. Private feedback	.71**	.50
8. Unit size	.94***	.88
9. Authoritarianism	.88***	.77
10. External stress	.72**	.52
11. Internal stress	.75***	.56

*$p < .05$, two-tailed test for $df = 15$.
**$p < .01$, two-tailed test for $df = 15$.
***$p < .001$, two-tailed test for $df = 15$.

Additional signs of construct validity. Upon reviewing the contingency measurements, unit officials testified to their validity. But several findings did not make immediate sense to the experimenter, until after site visits. For example, it was surprising that a unit of telephone technicians claimed the highest task interdependence and interaction; yet, through observation, it became clear that these workers were in constant face-to-face contact while

tracking down operational problems together in a very confined area. And while it was odd that teachers in a small school had the most private task feedback, it turned out that classroom supervision and visits were rarely, if ever, made. Finally, it did not make sense that a department of psychiatry was under the most external stress, that is, until it was learned that these professionals frequently received threats of physical violence from their clients. So even counter-intuitive findings seemed valid once the nature of the actual contingencies was probed.

In an attempt to understand the interrelationships among the 11 contingency variables, a principal components analysis on Ss' responses was performed. The direct solution produced a dominant factor accounting for 45% of the total variance. On this basis, it can be said that these measures tend to covary; i.e., they represent an empirically homogeneous pattern of environmental conditions. This suggests that, when the 11 contingencies are correlated to either climate prescriptions or climate descriptions in testing the major hypotheses, they will all relate to those other variables in somewhat the same way.

Upon varimax rotation, three factors were extracted--the first factor pertained to task features (contingencies 5, 6, and 7), the second loaded heavily on social interaction

(3, 4, and 8), and the third revolved around internal and external pressures (2, 10, and 11). Unlike the Climate Profile, the contingency measures yielded a comparable factor structure when the managerial and nonmanagerial subsamples were analyzed separately.

The First Major Hypothesis--Perceived Effectiveness of Climate

Subjected to intensive analysis, the measures central to this study have exhibited adequate reliability and validity. Consequently, we proceeded to verify the major hypotheses confident that, if the predicted relationships did exist, they could be detected by these instruments.

It is postulated that workers judge the human-relations quality of climate as more effective than the classical quality, ignoring interorganizational differences. Since the Climate Profile provided both Ss' prescriptions for climate and their descriptions of it along a theory X-theory Y continuum, a test of this hypothesis was made. Table 15 contains the results of a matched *t* test between the mean description and mean prescription of unit members. The significant difference found indicates that workers generally do prescribe a more human-relations climate for their organization than the climate it is seen as having.

TABLE 15

Comparison Between Climate Prescriptions and Descriptions

Group	$\bar{\bar{X}}$ Descriptions	$\bar{\bar{X}}$ Prescriptions	D	s_D	t	df	r^2_{pb}[a]
Supervisors	311.94	330.64	-18.70	30.55	-2.52*	16	.28*
Nonsupervisors	299.44	353.10	-53.67	32.90	-6.73***	16	.74***
Total	305.69	341.87	-36.18	35.95	-5.87***	33	.51***

[a]Squared point-biserial correlations represent a special case--an index of relationship strength where individual differences between matched pairs are partialed out (cf. McNemar, 1962, pp. 101-102).

*$p < .05$.
**$p < .01$.
***$p < .001$.

Nevertheless, several qualifications to this finding are warranted. First, prescriptions for a theory-Y climate are far more extreme among nonsupervisors ($r^2_{pb} = .74$) than among supervisors ($r^2_{pb} = .28$), significantly so when a matched t test is applied between hierarchical means across the units ($t = -5.85$, $r^2_{pb} = .68$, $df = 16$, $p < .001$). Second, neither supervisors nor the rank and file always perceive a human-relations milieu as superior--in four of the units studied, supervisors prescribed a more classical climate than the one they had and the same was true of nonsupervisors in three of those units.

In an attempt to provide a more powerful explanation of perceived climatic effectiveness, a contingency formulation has been introduced. It is predicted that employees' climate prescriptions are a function of at least 11 contingencies in the work environment. This was verified by

correlating a S's climate prescription score with each of his unit's mean contingencies as described by the S's hierarchical group. Note that individual prescription scores and mean contingency descriptions were employed so as to reflect the appropriate unit of analysis (i.e., individual vs. total-system).

As Table 16 illustrates, the contingency hypotheses are thoroughly confirmed in the form of 11 significant correlations. Clearly, the degree to which an organizational participant sees either the human-relations or classical climate as more effective is governed by these 11 environmental contingencies. And as anticipated, confirmation was more pronounced in the supervisory subsample, significantly so for the contingencies of task-necessitated coordination, potential task routinization, task problem structure, and private task feedback (cf. Table 16, column "r_{sup} vs. r_{sub}"). This would indicate that supervisors' prescriptions for effective climate are more contingent upon various aspects of the employees' task than are nonsupervisors' prescriptions.

The inferential use of product-moment correlations here carries with it the implicit assumption that data formed linear, homoscedastic patterns. Scattergrams of each relationship in Table 16 were drawn so that this analysis would not overlook higher-order trends to which such

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TABLE 16

Relationships Between the 11 Environmental Contingencies and Ss' Prescriptions for Classical vs. Human-Relations Oriented Climates

Contingency	$\underline{r}$ ($\underline{df}$=338)	$\underline{r}^2$	$\underline{r}_{sup}$ ($\underline{df}$=168)	$\underline{r}_{sub}$ ($\underline{df}$=168)	$\underline{r}_{sup}$ vs. $\underline{r}_{sub}$[a]
1. Goals	.54***	.29	.56***	.55***	ns
2. Coordination	.35***	.12	.39***	.29***	2.13*
3. Interdependence	.43***	.19	.46***	.44***	ns
4. Interaction	.42***	.18	.45***	.43***	ns
5. Routinization	.60***	.36	.68***	.59***	3.60***
6. Problem structure	.60***	.36	.68***	.61***	2.80**
7. Private feedback	.56***	.32	.66***	.50***	6.15***
8. Unit size	.40***	.16	.43***	.39***	ns
9. Authoritarianism	.64***	.41	.66***	.65***	ns
10. External stress	.22***	.05	.24***	.16**	ns
11. Internal stress	.30***	.09	.32***	.28***	ns

[a]This column contains a significance test of the difference between the supervisors' and subordinates' correlation coefficients. Treating the supervisors' validity coefficient as the population value, the null hypothesis that the subordinates' statistic came from that population was tested $\left(z = \frac{r_{12} - \rho_{12}}{\sigma_r} \right)$.

*$\underline{p} < .05$.
**$\underline{p} < .01$.
***$\underline{p} < .001$.

correlations are insensitive (cf. Kerlinger & Pedhazur, 1973, p. 222). These plots are found in Appendix VI, one of which gave evidence of a slight quadratic bend (cf. Appendix VI, Figure J): seemingly, Ss prescribed a more human-relations climate where there was moderate external stress, but a more classical climate where either low or high external stress prevailed. This curvilinearity may account for what turned out to be the lowest validity coefficient in Table 16.

Scattergrams were created on just the supervisory data and these displayed a more pronounced curvilinear trend for external stress; in addition, similar, but more mild trends were also associated with internal stress and task-necessitated coordination. In contrast, the nonsupervisory subsample did not exhibit these higher-order relationships.

Several questions still remain. Which of the contingencies is the most potent predictor of climate's perceived effectiveness? And what is the combined power of all 11 contingencies in explaining climate prescriptions? Since these contingencies were shown to be highly intercorrelated, an immense, if not insurmountable problem exists in deciphering their relative importance (Kerlinger & Pedhazur, 1973, p. 296). A stepwise regression solution, being appropriate to such situations, was applied: Ss' climate prescriptions were treated as the dependent variable and the 11 contingency values treated as independent variables (BMD02R, Dixon, 1970). Table 17 contains a summary of this procedure.

Having the highest zero-order correlation with prescription scores, member authoritarianism (#9) is the first variable entered into the stepwise equation. Its dominance among the predictors is maintained through to the final step where it also has the largest "F to remove." The unit's goal emphasis (#1) and private task feedback (#7) are the

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TABLE 17

Summary of Stepwise Regression Analysis for Relationships Between Contingencies and Ss' Climate Prescriptions

Step	Variables in Equation					Variables Not in Equation			
	Variable Entered[a]	R	df	F[b]	F to Remove[c]	Variable[a]	Partial R	df	F to Enter[d]
1	9	.64	1/338	229.6**	229.6**	1	.27	1/337	26.70**
						2	.13	1/337	5.62*
						3	.20	1/337	14.37**
						4	.14	1/337	7.19**
						5	.23	1/337	18.74**
						6	.23	1/337	18.06**
						7	.26	1/337	23.46**
						8	.12	1/337	4.72*
						10	.03	1/337	.35
						11	.18	1/337	11.24**
2	1	.67	2/337	136.9**		2	.09	1/336	2.78
	9		1/337		95.9**	3	.04	1/336	.58
	1		1/337		26.7**	4	.04	1/336	.46
						5	.11	1/336	3.74
						6	.12	1/336	4.72*
						7	.14	1/336	7.49**
						8	.09	1/336	3.15
						10	.00	1/336	.00
						11	.01	1/336	.03
3	7	.68	3/336	95.5**		2	.06	1/335	1.12
	1		1/336		10.6**	3	-.01	1/335	.03
	9		1/336		60.4**	4	-.01	1/335	.04
	7		1/336		7.5**	5	.05	1/335	.91
						6	.09	1/335	2.64
						8	.08	1/335	1.90
						10	.03	1/335	.29
						11	-.05	1/335	.92
4	6								
5	8								
6	2	STEPS 4 THROUGH 10 OMITTED BECAUSE INCREMENTS OF							
7	5								
8	11	LESS THAN .01 OCCURRED IN R							
9	3								
10	4								
11	10	.69	11/328	27.1**	.4				
	1		1/328		3.8				
	2		1/328		2.6				
	3		1/328		2.6				
	4		1/328		1.3				
	5		1/328		2.3				
	6		1/328		4.6*				
	7		1/328		5.3*				
	8		1/328		1.9				
	9		1/328		9.0**				
	11		1/328		4.0*				

Note.—For a detailed account of the stepwise technique used here (BMD02R), see Kerlinger and Pedhazur, 1973, pp. 290-295.

[a]Independent variables are here designated by the same number assigned to them in Table 16 (e.g., #9, the first variable entered, is "Member authoritarianism").

[b]The F ratio for the overall R at each step.

[c]The "F to Remove" is the F ratio testing the loss incurred on R by removing that particular variable at that step.

[d]The "F to Enter" is the F ratio testing the increment in the proportion of variance accounted for by that variable when entered last in the equation.

*p .05.
**p .01.

next two variables to enter the equation. Both variables tend to retain some importance throughout. In contrast, problem structure (#6) and internal stress (#11), though entering at later stages, assume increasing importance by the last step. This procedure gives some idea of the significance of each predictor in the multiple regression system, but stepwise techniques are menaced by shrinkage (Cooley & Lohnes, 1971, p. 56), cautioning against too strict an interpretation here.

The overall ability of the 11 contingencies to account for Ss' climate prescriptions is registered in a significant R of .694. Once the first three variables were considered, however, very little additional criterion variance was explained by the remaining contingencies--not an uncommon occurrence according to Nunnally (1967, p. 162). A correction for shrinkage was made, resulting in an estimated R of .675. As an additional safeguard against shrinkage, the sample was divided hierarchically and separate stepwise analyses were performed (cf. Kerlinger & Pedhazur, 1973, p. 283). The overall Rs in both subsamples were actually larger--.75 for supervisors and .73 for nonsupervisors.

The Second Major Hypothesis--Actual Climates

Having confirmed that a climate's perceived effectiveness

is moderated by the 11 contingencies studied, the second major hypothesis came under investigation. Derived from a survival model, this hypothesis states that actual climates, too, vary along a theory X-theory Y dimension as a function of the same environmental contingencies. But to these 11 contingencies, a twelfth was added--the climate prescriptions of unit members.

Hypothetically, it follows that actual climatic quality should correlate highly with each of the 12 contingencies. Climate, as a total-system phenomenon, was operationalized by the mean description of Ss within a hierarchical group of the same organization. Likewise, the same unit means of the 12 contingencies were employed. Since 17 units were sampled, each with two hierarchical levels, the n for this analysis was 34.

Table 18 (first column) contains the 12 critical validity coefficients, 10 of which are significant and even the two that are not were still in the predicted direction. Consequently, actual climate does vary in classical-to-human relations quality as a function of at least 10 out of the 12 contingencies.

The nonsignificance of task-necessitated coordination and external stress might possibly have been explained by curvilinear trends deflating their validity coefficients.

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TABLE 18

Relationships Between 12 Environmental Contingencies and the Classical-Human Relations Quality of Climate

Contingency	Climate Profile descriptions					Pugh et al. index	Etzioni's schema
	r^a (df=32)	r^2	r_{sup} (df=15)	r_{sub} (df=15)	$R^2_{yx'\cdot k-1}$ [b]	r^a (df=32)	r^a (df=32)
1. Goals	.70***	.19	.78***	.63**	.125	.60***	.63***
2. Coordination	.31	.10	.36	.28	.010	.38*	.35*
3. Interdependence	.53**	.28	.55*	.52*	.018	.49**	.35*
4. Interaction	.37*	.14	.34	.39	.207*°	.41**	.22
5. Routinization	.73***	.53	.74***	.71**	.007	.78***	.67***
6. Problem structure	.75***	.56	.77***	.72**	.049	.81***	.72***
7. Private feedback	.74***	.55	.73***	.75***	.191*°	.73***	.66***
8. Unit size	.55***	.29	.56*	.55*	.247*°	.63***	.58***
9. Authoritarianism	.66***	.44	.57*	.74***	.009	.76***	.73***
10. External stress	.14	.02	.33	.02	.000	.27	.19
11. Internal stress	.57***	.33	.64**	.52*	.001	.47**	.53**
12. Prescriptions	.70***	.49	.77***	.76***	.039	.85***	.75***

[a] These validity coefficients indicate the most powerful predictors of classical-to-human relations quality of climate when the intercorrelations among the predictors are ignored.

[b] These are squared higher-order partial correlations between each predictor and the Profile climate description, partialling out the effects of the other 11 predictors. In a multiple regression system, these coefficients represent the loss incurred on the overall R by removing that particular variable when all other predictors are in the equation.

[c] The squared partial coefficients were tested for significance using t_b values at N-k-1 or 21 dfs (cf. BMD03R, Dixon, 1970; Kerlinger & Pedhazur, 1973, Chapter 5).

*p<.05.
**p<.01.
***p<.001.

But, as the scattergrams in Appendix VII reveal, no higher-order trends worth testing statistically were identified. Both variables had suffered some restriction of range (cf. Sample Description) which might have offered another explanation for these low correlations (Guion, 1965, pp. 141-142). This was discredited by the fact that other variables, also suffering restriction, had managed to correlate significantly

with actual climate (e.g., member authoritarianism). Therefore, task-necessitated coordination and external stress had to be considered as exceptions to the contingency formulation, at least under the second hypothesis.

To compare the degree to which confirmation was realized in the supervisory versus the nonsupervisory subsample, separate analyses in each were carried out. Although the same pattern of correlations occurred in those subsamples, the coefficients were generally larger, as predicted, for the supervisors (cf. Table 18, "$\underline{r}_{sup}$" vs. "$\underline{r}_{sub}$"). Due to the lack of statistical power with small samples and effect sizes (Cohen, 1969), tests of significant differences between managers' and nonmanagers' coefficients proved unfeasible.

Again the questions arise, How potent are these contingencies in predicting climatic quality and which of them are more important? Using a multiple regression analysis (BMDO3R, Dixon, 1970), with climate description means as the dependent variable, the 12 predictors accounted for 83% of the climate variance (or 73% when corrected for shrinkage).

Isolating each contingency's importance in accounting for actual climatic variance presents a rather difficult problem. Neither stepwise regression nor the use of factor scores on the three factors extracted from the contingencies offered a suitable approach; in both cases the 33 dfs avail-

able here are insufficient (cf. Kerlinger & Pedhazur, 1973, p. 282). Instead, the first step of a "forward solution" was already available in the zero-order correlations between each contingency and the Climate Profile descriptions (Kerlinger & Pedhazur, 1973, pp. 285-288). Disregarding the intercorrelations among contingencies, the task characteristics of potential routinization, problem structure, and private feedback are the most dominant predictors (cf. Table 18, first column).

But because a variable's status can change when predictors are combined, a variation on the "backward solution" was resorted to (Kerlinger & Pedhazur, 1973, pp. 289-290): after entering all 12 predictors into the regression equation, squared partial correlations served to estimate the decrement in R that would result by removing any predictor while all the others remained (cf. Table 18, $R^2_{yk \cdot k-1}$). The contingencies of goal emphasis and private feedback retain their potency, while task interaction and unit size become more important. When taking into consideration the intercorrelations among the predictors, task routinization, problem structure, member authoritarianism, and members' prescriptions for climate tend to decline in stature.

Rather than depend solely on the previous analysis to confirm the second major hypothesis, two additional steps

were taken. Using expert informants' reports, obtained by Pugh et al.'s bureaucracy index and Etzioni's a priori classification schema, each contingency was correlated with these two taxonomic measures (cf. Table 18, last two columns). Since both Pugh et al.'s and Etzioni's taxonomies are viewed as conceptually similar to the Profile's, the second hypothesis should be verified using those measures as well. That is, the 12 contingencies should also account for actual total-system variance along the bureaucratic-to-nonbureaucratic and coercive-to-normative continua. This corollary is confirmed, but more importantly, the previous findings are essentially replicated with those other measures. Therefore, our findings' generalizability is substantially increased--three different methods of assessing the same classical-to-human relations taxonomic variance culminated in the convergent validation of the second major hypothesis.

Three Final Issues

It might be expected that supervisors see their climates as more effective than do nonsupervisors. Translated into operational terms, endorsement of the actual climate can be captured by the absolute difference between climate description and climate prescription. Signless discrepancy scores

were created for all hierarchical groups by taking the difference between their mean description and prescription. Then, a matched *t* test was performed between discrepancy scores of hierarchical groups from the same unit, the expectation being that subordinates' scores would be significantly greater (H_1: $\mu_{sup} < \mu_{sub}$). The null hypothesis was rejected ($t = -3.13$, $r^2_{pb} = .38$, $df = 16$, $p < .01$), indicating that supervisors do, in fact, endorse their climate's present quality more than do nonsupervisors.

Do supervisors and nonsupervisors perceive their climates in different ways? To a large extent, this was answered by Table 10. Looking back, it was found that hierarchical group means drawn from the same unit correlate significantly, indicating a consensus. On the other hand, a systematic or constant difference was detected. Managers tend to ascribe a more theory-Y atmosphere to their work units than do nonmanagers ($t = +2.37$, $r^2_{pb} = .26$, $df = 16$, $p < .05$). This conforms to a prediction made in the course of the last chapter.

A final question of major importance remains: are more homogeneous or congruent climates prescribed by employees? Since the Profile was demonstrated to have high internal consistency (alpha= +.94), the items within this instrument are considered homogeneous. Therefore, if a *S* responded

without variability to the Profile items, his responses could be said to depict a homogeneous climate; conversely, if his responses varied widely from item to item, he would be depicting a heterogeneous climate. To answer the question of whether Ss prescribed a more homogeneous climate was merely a matter, then, of comparing their variability in stating climate prescriptions versus their variability in describing actual climate.

A t test, matched by individual, was performed between the SDs of descriptions and the SDs of prescriptions. Taking 140 Ss from the first seven organizations, it was discovered that Ss' climate prescriptions had a considerably smaller SD than their descriptions (t= +10.8, r^2_{pb}= .46, df= 139, $p < .001$). Replicating this procedure on the remaining 200 Ss in the last 10 organizations, essentially the same results were obtained (t= +9.8, r^2_{pb}= .33, df= 199, $p < .001$). It was concluded that employees in general judge a homogeneous or congruent climate as more effective than their own, regardless of its classical or human-relations quality.

> The contingency view seeks to understand the interrelationships within and among subsystems as well as between the organization and its environment and to define patterns of relationships or configurations of variables. It emphasizes the multivariate nature of organizations and attempts to understand how organizations operate under varying conditions and in specific circumstances. Contingency views are ultimately directed toward suggesting organizational designs and managerial practices most appropriate for specific situations [Kast & Rosenzweig, 1973, p. ix].

CHAPTER 8

An Overview:

Discussion and Conclusions

At the very outset, two fundamental commitments were made: first, to explore and operationalize the construct of "organizational climate" as a vehicle by which to enter the much neglected realm of total-system research; and then, with the possible help of that construct, to compare the appropriateness of work atmospheres spawned by the two major theoretical schools of organization. Conditional upon our success at each stage, the ultimate intention was to shed some light on the processes by which social environments might be designed and managed. Potentially, then, we anticipated contributions in three areas: methodology, theory, and practice.

Methodological Implications

"Organizational climate" offers an avenue of escape from the reductionism typifying most current environmental research since it is defined as a relatively enduring perceived quality of the total system. Considerable emphasis has been placed on our ability to measure this phenomenon in order to see whether climate assessment does provide a methodological breakthrough to more global levels of analysis (cf. Chapters 3, 4, and 7).

Tagiuri (1968a) portrays climate as "phenomenologically external to the actor" and as "capable of being shared (as consensus) by several persons in the situation." Because climate has this semblance of objectivity, its measures should elicit interobserver agreement. However, little relevant empirical evidence can be found outside of a very rough approximation by Schneider and Bartlett (1970). Our results indicate that significant levels of consensus are reached by members of the same organization, both in their perceptions of molar climate (i.e., the Climate Profile's total score) and in their descriptions of climate's particular facets (i.e., each Profile item).

Two qualifications should be made with regard to this strong consensus. First, it might have been amplified procedurally--only organizations 'under one roof' were

studied, thereby increasing the likelihood that members shared a similar climate; and, even though asked to refrain, the respondents might have collaborated in our uncontrolled field setting. Second, interobserver agreement was blemished by mild, but consistent discrepancies between supervisors' and nonsupervisors' reports (e.g., managers gave a more theory-Y account of their units). It should come as no surprise that a person's vantage point within the social system affects his climate perception (cf. Schneider, 1972; Schneider & Bartlett, 1969). Nevertheless, this does raise the question, Is there any identifiable climate or are reports of it distorted by other factors?

In answer, it might be recalled that extensive agreement between supervisors and nonsupervisors does exist despite any mild disparities. Still, perceptual measures can be fortified against accusations of distortion only when convergently validated by more objective instruments (cf. Chapter 3). For this reason, we demonstrated that subjective and objective indices of global climate do corroborate one another. This parallels similar findings in the past (Astin, 1963; Litwin & Stringer, 1968; Pace, 1968).

These demonstrations of external reliability contain far-reaching implications. They suggest that workers' perceptions of their climate are veridically founded on

some external reality. Thus, "climate" goes beyond being just an abstract concept and passes into the phenomenal realm of empiricism.

In Chapter 4, the technique of climate research was cultivated as a powerful heuristic device for the comparative analysis of total systems. Our own Climate Profile attempts to classify organizations along a taxonomic dimension running between the classical and human-relations paradigms. Yet, Hall (1963) and Pugh et al. (1968) have decried unidimensional taxonomies of this sort. So, to what extent are we able to employ this innovative technique to assess molar social environments?

Since the Profile's total score supposedly reflects variance in the theory X-theory Y quality of work climates, its 32 items should all measure the same attribute, i.e., be correlated with one another. Despite sample heterogeneity and items that dealt with a variety of topics ranging from leadership processes to structural properties, our instrument does exhibit internal consistency. In this respect, it compares favorably with previous climate measures (cf. Table 3). But even more encouraging is the conspicuous general factor that its items produce. If, as Hall and Pugh et al. contended, organizations defy unidimensional classification of any kind, then our Profile should have disintegrated

into a complex factorial structure. The dominance of only one factor indicates that climate can be measured along a single continuum.

Descending from the taxonomic level, by varimax rotation, the subdimensions of the Profile were examined. Only after separating the climate descriptions of supervisors from those of nonsupervisors did an intelligible solution emerge, signifying the influence that hierarchical perspective has on an employee's view of his atmosphere. The subdimensions derived in Chapter 7 have much in common with those from earlier factor analytic studies of climate (cf. Table 4)--"autonomy vs. constraint," "conflict vs. support," "leadership," and "coworkers." The consistency with which these factors recur across different studies lends a certain convergent validity to the entire procedure of climate assessment.

Returning to the general dimension of climate that was uncovered, what interpretation can be placed on it? Given the content of the Profile (Appendix I), its common core would appear to be the classical-to-human relations atmospheric quality--the same taxonomic variable suggested by numerous authors and illustrated before in Table 5. To validate this interpretation, a multitrait-multimethod strategy was adopted with definitive results. The Profile's total score permits classification of entire organizations

along a global unidimension, the traditional and modern paradigms of total-system design at either pole.

In summary, the methodological contribution made by these endeavors is twofold. First, it has been demonstrated that climate measures can reliably and validly assess macro-system qualities, thus releasing the behavioral scientist from the atomistic research designs he has been condemned to by the complexity of social environments. Second, a useful and elegant basis for the comparative analysis of organizations has been empirically established here--the classical-to-human relations taxonomy.

Theoretical Implications

Presently, both theorists and administrators face the dilemma of whether to design social systems around human-relations (modern, theory-Y, organic, participative) principles or around classical-management (traditional, theory-X, mechanistic, bureaucratic) principles. As outlined in Chapter 4, the little a posteriori knowledge we do have at a total-system level tentatively favors the modern paradigm.

But instead of advocating either social-system model as the one 'best' master plan, the research surveyed in Chapter 5 suggests a contingency theory be adopted--that the appropriateness of theory-X or theory-Y atmosphere is

moderated by the particular goals of the organization, its tasks, its size, its members' personalities, and the stress factors to which it is subjected.

In apparent contradiction to this contingency formulation, workers generally perceive a more theory-Y quality of climate as enhancing the effectiveness of their organization, regardless of the situational parameters. While this confirms Likert's (1961, 1967) findings to some extent, the data do not confirm his general proposition that workers always opt for this modern environment. In nearly 25% of the units studied, managers claimed that a more classical climate would be better than the one they had and the same was true of nonmanagers in nearly 18% of the units. Moreover, as predicted, subordinates manifest a far stronger attraction to the participative climate than do their superiors. As it became evident later, this is probably because subordinates are less sensitive to the situational factors which seem to govern the advisability of adopting participative strategies.

Why do employees in certain organizations advocate the use of more classical principles? According to the contingency theory, this previously inexplicable occurrence is a function of at least 11 environmental characteristics. Our findings do confirm this--a traditional climate is

perceived by members as increasing system effectiveness where the following conditions exist: the organization's goal emphasis rests more on quantity than on quality, its tasks require extensive coordination, there is little task interdependence, task-related interaction is minimal, tasks are susceptible to routinization and are of low cognitive complexity, little private feedback goes to the task performer, the unit itself is large, its members are highly authoritarian, and both external and internal stress are prevalent. In contrast, where the same 11 contingencies are reversed, the human-relations climate is more likely to be viewed as more effective. This is consistent with an emerging pattern of findings in the current research literature as sketched in Chapter 5.

Several additional discoveries were made in the course of this analysis. Among the 11 contingencies, member authoritarianism is clearly the dominant factor in explaining workers' prescriptions for theory-X versus theory-Y atmosphere. Also, some curvilinear trends were uncovered, especially in the managerial data; e.g., where moderate stress existed, the human-relations climate was seen as appropriate, but where stress was either strong or weak, the classical climate increased in its perceived effectiveness. Such trends are reminiscent of those turned up by Fiedler (1968) and his

colleagues. Finally, the contingency hypothesis under investigation, as a whole, was upheld more firmly in the managerial subsample. This was anticipated partly because managers, due to their hierarchical position, can become better acquainted with the total system and partly because they must rely on situational analysis in formulating suitable courses of action in their roles as leaders (Kast & Rosenzweig, 1973; Vroom & Yetton, 1972a, 1972b).

Moving on to a second test of the contingency theory, it was found that enduring organizations actually exhibit either a more classical or more human-relations climate depending upon the situational constraints under which those systems operate. An organization tends increasingly to possess a human-relations climate when goal emphasis is on quality rather than quantity, tasks are interdependent, task-related interaction is frequent, tasks are insusceptible to routinization and are cognitively complex, workers receive private task feedback, the unit is small, members are nonauthoritarian, there is little internal stress, and workers perceive the theory-Y climate as more appropriate than the theory-X climate. Conversely, increasingly classical climates are exhibited by organizations where the opposite contingencies prevail.

Again, these results are in line with the literature

reviewed in Chapter 5. Goal emphasis, private task feedback, and unit size stood out as the most potent contingencies in accounting for the actual climatic quality that emerges within different organizations. But contrary to our expectations, task-necessitated coordination and external stress were shown to be rather unimportant. As anticipated, this second major hypothesis was also confirmed more by managerial than nonmanagerial data.

Although somewhat tangential to the main theoretical impetus of this investigation, several findings are of interest and, because they were predicted, lend a degree of validity to our study in general. First, managers tend to describe their climates as more human-relations oriented than do their subordinates. Two possible explanations suggest themselves: an aura of social desirability has become attached to democratic or participative practices in business today, perhaps encouraging managers to describe their units in this way; it is also conceivable that the typical manager's climate is, in fact, more participative when compared to the typical nonmanager's climate.

It was further disclosed that managers perceive their organization's climate as more effective than do nonmanagers who, in turn, show a greater discontent with the status quo. Again, there are several possible explanations. We are led

to believe, both by common sense and limited research (Litwin & Stringer, 1968), that managers have more of a hand in fashioning the climate; if this is so, some reduction of dissonance takes place as they testify to its desirability. At the same time, considerable research indicates that supervisors are indeed more satisfied with their work than are subordinates (Porter & Lawler, 1965).

Regardless of whether employees endorse a classical or human-relations work environment, it was found that they prefer congruent atmospheres whose various components are homogeneous. The ecological literature surveyed in Chapter 3 dwelt on the salutary effects of person-environment fit (e.g., Andrews, 1967; Hall & Schneider, 1972; Pervin, 1968). This same theme was revived in Chapter 5 with Etzioni's (1961) congruency theory and, more specifically, in studies by Frederiksen (1966, 1968), Litwin and Stringer (1968), Vroom and Mann (1960), and Woodward (1965). As we subsequently discuss our experiment in more critical terms, this notion of congruency will assume increasing importance.

Returning to the mainstream of our inquiry, its major findings are in accord with the spirit of several other contingency formulations of total-system design (Argyris, 1964; Etzioni, 1961; Katzell, 1962). The appropriateness of either the classical or human-relations design is con-

ditional, contingent upon a specifiable set of constraints. This proposition was convergently validated by tests of two independent hypotheses, one derived from the effectiveness model and the other from the survival model.

Philosophers of science caution us that, unlike disconfirmation, confirmation of a theory never occurs in a decisive manner (Turner, 1967). While our findings may not prove the contingency theory, they certainly disprove the currently popular theory that a human-relations master plan is best. That one-sided doctrine cannot explain the dysfunctional effects of theory-Y practices under certain circumstances (cf. Chapter 5); nor can it explain why viable organizations stubbornly retain their bureaucratic atmospheres; nor can it assimilate the discovery that some workers reject the human-relations climate as less effective than the classical one.

Our contingency theory can explain these enigmas; furthermore, it provides a conceptual framework which arranges into meaningful patterns the complex interrelationships between many organizational variables. At the same time, it gives us a basis upon which to evaluate the relative merits of the traditional and modern master plans. Neither of them seems to be superior in the practical setting; instead, each has its own domain of applicability.

Possible Limitations

The most obvious limitation placed on our study is imposed by the parameters of the purposive sampling technique used. The sample was confined to utilitarian organizations in and around the New York City area, those with well defined boundaries, large enough to provide the required number of subjects, and varied enough to ensure sample width on all major variables (cf. Chapter 6). Strictly speaking, conclusions based on this sample apply only to the sampled population (Cochran, 1963, p. 6).

Although the stability of our results was in most cases enhanced by replicating each analysis with two separate hierarchical groups, some might criticize what they feel was an overreliance on the subjective impressions of the workers. Do our findings capture objective relationships or merely those 'in the worker's head'? To guarantee the objectivity of our data, the ensuing controls were instituted: (a) interobserver agreement was demanded of all descriptive reports (consensus among workers, between hierarchical groups, and between workers and experts who used more objective methods of assessment); (b) group means rather than individual responses operationalized all descriptive variables, thus raising the data to a more objective level

of analysis; and (c) in confirming the relationships between actual climate and the contingencies, climate was measured by three different methods (workers' descriptions, Pugh et al.'s structural index, and Etzioni's a priori schema), each convergently validating the others. The only variable in our design that was solely at the subjective level, where it belonged, was the employee's opinion about climatic effectiveness.

A most intriguing criticism can be leveled at the finding that theory X-theory Y climatic quality varies as a function of certain contingencies. If "climate" is, as claimed in Chapter 2, an all-pervasive environmental quality, are not the contingencies themselves just another part of climate? If so, then is not the discovery that they are related to climate a tautological inanity?

It must be conceded that the contingencies we studied do contribute to the <u>generic</u> climate as does, potentially, every other organizational factor. But our concern is not with generic climate, only with one of its possible dimensions--the classical-to-human relations quality. This particular dimension, as it was defined in Chapter 4, is conceptually quite independent of the contingencies. No where is it stated that either the traditional or modern atmosphere must, by definition, envelop only social systems with certain

production goals, or specific tasks, or certain types of members, or of some definite size, or under special conditions of stress. And since these factors subsume the contingencies in question, it is clear that they are conceptually distinct from the theory X-theory Y dimension of climate. Faithful to this conceptual independence, our measures of climate (Appendix II) and the contingencies (Appendix III) do not overlap in manifest content.

What has been refuted is the accusation that the climate and the contingencies investigated here are tautologically identical. However, we have discovered that they are empirically related within actual organizations (by confirmation of our second major hypothesis). To some extent, this serves to redefine the traditional and modern genotypes--our contingencies seem to be 'part of' those atmospheres in an empirical sense. What, then, becomes of a contingency theory which asserts that these situational factors moderate the appropriateness of environments to which they, in fact, belong?

At issue here is the precise nature of the climate-contingency relationship. It cannot be argued that the contingencies cause the emergence of a climatic quality, for equally plausible is the claim that a system's climatic quality causes the formation of these contingencies. Leaving

cause-effect terminology behind, the open-system model assumes that every phenomenon within the organization both affects and is affected by every other phenomenon (Berrien, 1968; Lichtman & Hunt, 1971). This is a transactional view where the empirical climate-contingency relationship becomes an essentially reciprocal or circular one (cf. McGregor, 1960, pp. 182-183; Pervin, 1968).

By this view, our research has merely demonstrated that classical and human-relations climates tend to coexist with two quite different sets of contingencies. Better said, there seems to be a principle of congruence operating here--viable organizations seem to adapt toward integrated, homogeneous variable patterns. This translation of the climate-contingency relationship into terms of congruency in no way alters the theoretical implication of our research: neither the classical nor the human-relations design is universally appropriate across all settings.

Since this investigation represents only a first approximation in confirming a contingency/congruency theory of systems design, its limitations offer substantial opportunity for further research. We have studied the appropriateness of total-system models only in terms of actual practice and perceived effectiveness. It is still necessary to examine whether other vital phenomena are moderated by the

same congruence between contingencies and atmospheric quality. Do turnover, absenteeism, job satisfaction, individual productivity, organizational goal attainment, etc. also depend upon the fit between the contingencies isolated here and the theory X-theory Y quality of climate?

As the result of future research, other contingencies may become tied into this theory. It is unlikely that we have exhausted all possibilities here. In Chapter 5, one such contingency immediately suggested itself--the "Zeitgeist." In a broader socio-historical context, it may well be that the spirit of the times has a powerful influence over an organizational design's suitability.

Many might criticize the absence of any value judgments here, feeling that the human-relations paradigm is still inherently "better than" the classical atmosphere--that somehow it is more in line with the "Zeitgeist" of our democratic culture and Western tradition in general. But our findings serve to dispel any illusion that this human-relations paradigm will automatically prevail just because, ethically, it should. Under certain contingencies, themselves ethically indifferent, this paradigm's chances of acceptance and survival are severely limited.

Trespassing a bit on science fiction, one can imagine a utopia which would according to our contingency theory

maximize the survival value of human-relations social systems. There, the quality of his work would be man's sole objective; tasks would be challenging and insusceptible to routinization; man would be autonomous and without any vestiges of authoritarianism; work groups would be intimately small; and tranquility would reign. But we have no promise that history will take so favorable a turn unless social changes are made on many fronts. It may well be that disciples of the human-relations school are prophets of that future age, but for the present, applied science must grapple with the harsh realities that visionaries need not be troubled by.

Practical Implications

Those at policy-making levels have often sought guidance from the behavioral sciences in designing and managing their social systems. They have either been bewildered by a profusion of atomistic studies, each in relative theoretical isolation, or they have been offered master plans of dubious empirical origin. For the nonscientist, such master plans are the lesser of two evils, being far more palatable and relevant. But one might wonder why the layman has not become disenchanted with us--not too long ago the classical master plan was being evangelized, while today in many respects its

antithesis, the human-relations model, is being proclaimed.

Our intention has not been to promote yet another master plan. Instead, we have taken a small, but important step toward bringing organizational grand theory into alignment with fragmented empiricism. The practical implication of our results seems to be this: those at policy-making levels are warned against unqualified adherence to either the traditional or modern principles of total-system design.

It could be argued that we have also come a step closer to a managerial science of social environments. More precisely, there is an identifiable set of situational contingencies which seems to govern both the perceived effectiveness and appropriateness of system-management principles. By allowing situational analysis to guide us in the application of those principles, we may be able to achieve desirable, congruent, and effective social-system environments. But any greater expansion on these practical implications would take us too far beyond the intended scope of this inquiry.

APPENDIX I

DEVELOPMENTAL PROCEDURES

FOR

THE PROFILE OF ORGANIZATIONAL CLIMATE

APPENDIX I

Developmental Procedures for The Profile of Organizational Climate

Since our research concerns itself with total-system variance along a continuum ranging from classical to human-relations climates, it was necessary to develop an instrument that could detect this global, taxonomic variance. For this reason, we constructed the Profile of Organizational Climate and recount that developmental procedure here in the detail it deserves.

In the text, Likert's (1967, pp. 196-211) Profile of Organizational Characteristics was recommended as a valuable strategy for operationalizing "climate" along the traditional-modern taxonomic continuum. Using participant perceptions, Likert's instrument classifies organizations between the two poles of "exploitive authoritative" (classical) and "participative group" (human relations). In doing so, a variety of subsystem properties are analyzed--leadership, communication, interaction-influence, decision making, performance, goal setting and ordering.

Likert's Profile is praiseworthy, at least in format. Not only does it measure overall variance in organizational climate by its total score, it also taps specific micro properties of the social system which can be interpolated

from each item. Given this format, somewhat analogous to a periodic chart, his questionnaire can measure total-system variance and, at the same time, maintain a sensitivity to the combination of less molar factors that might interact in the emergence of a macro quality such as climate.

The versatility of Likert's Profile is evidenced also by the fact that it can be used to measure participants' preferences for climate as well as their descriptions of it (cf. Likert, 1961, 1967). Therefore, using this instrument, we can examine various subdimensions of climate, describe the global atmosphere along the theory X-theory Y continuum that interests us, and we can also obtain members' preferences for climate. But before naively adopting Likert's Profile, we should hesitate and examine some of its faults.

Using this questionnaire, Likert invariably found the human-relations climate to be superior. Closer examination of its original forms (1967, pp. 4-10, 14-23) soon reveals why such results were obtained. To begin with, there are headings over all the scales: "exploitive authoritative," "benevolent authoritative," "consultative," and "participative group." One would suspect that even the most callous manager would steer clear of describing his climate as "exploitive" unless it were unbearable and he certainly would be reticent to admit he preferred such an atmosphere. Furthermore, all scales follow the same left-to-right pattern and, thereby, increase the likelihood of response sets favoring a "participative group" milieu.

Still further, if the reader only momentarily glances over the wording of Likert's items, he is immediately struck by the gross social desirability of responses depicting the human-relations climate. To reinforce this point, a sampling of the scale anchors are presented (1967, pp. 196-211): "Manner in which motives are used"--"Fear, threats, punishment and occasional rewards" (classical) vs. "Economic rewards based on compensation system developed through participation . . ." (human relations); "Upward communication"--"Tends to be inaccurate" (classical) vs. "Accurate" (human relations); Use of control data--"Used for policing and in a punitive manner" (classical) vs. "Used for self-guidance and for coordinated problem solving and guidance; not used punitively" (human relations). The obvious weakness in many of Likert's items resides in the assumption that the classical climate, axiomatically, must be a brutal and generally odious environment in which to work. According to Stanton (1960), this assumption is empirically invalid. But by operationalizing the traditional climate in such negative terms, Likert guaranteed that his subjects would be repelled by it and that such a climate would automatically become associated with the worst of organizations.

Likert himself suspected as much (1967, pp. 116-123) for he called attention to the spuriously high reliability coefficients obtained (e.g., +.98 split-half r_{xx}). So Likert moved to eliminate the possible contaminants: all scale headings were dropped, the previously uniform left-to-right scale

order was randomly inverted for 23 out of 51 items, and certain new items were added. These improvements resulted in the Profile of Organizational Characteristics (1967, pp. 196-211). Despite these adjustments, however, the intercorrelations among the items still remained sizable and the reliability coefficients were just as high as before (viz., +.98, +.97, +.90).

Although we concur with Likert in his strategies to remove bias, one source of contamination clearly remains. His revised questionnaire is still heavily loaded in favor of the "participative group" climate. In fact, this prejudice is so extreme that Likert, in effect, operationalized a straw man in the form of a distasteful classical paradigm. Consequently, it would be useless to adopt his measure without first submitting its contents to considerable revision. In essence, then, our criticism is one of content, not strategy.

Our Profile of Organizational Climate (Appendix II) was created especially to neutralize the blatant social desirability of Likert's human-relations paradigm. The revisions made to his Profile were as follows. First, items 2b, 3a, 3a-3, 3d-3, 5b, 5c, 5e-1, 5e-2, 6b, 6c, 7b, and 7d have been eliminated because of the extreme difficulty encountered in trying to ameliorate them--the implicit assumption that the traditional climate is pernicious stubbornly pervades those items. Items 2g, 3d-1, 3f-1, and 3f-2 were also dropped for this same reason. Items 8a, 8b, and 8c labor under the obvious misconception that the human-relations climate always

has higher goals and will inevitably supply superior training. These, too, were eliminated. Finally, several items were deleted or combined because of redundancy: item 2f repeats our item 1, items 3d-2 and 3d-4 were condensed into one, and item 4-b repeats our item 6.

After the elimination or condensation of these items, Likert's leadership scales were replaced by "emotional texture" (warmth), "participation," and "initiating structure" (cf. Campbell et al., 1970, p. 416). The remaining items were adopted, with modifications, from his Profile. But throughout this process, several criteria guided our revisions: (a) the scalar poles had to be equal in terms of social desirability; (b) anchors along each scale were made, conceptually, more equidistant from one another; and (c) items were modified to capture more sharply the critical differentiating features of both the traditional and modern archetypes (cf. Chapter 4). With regard to this last point, it seems that most of those who defined the two archetypes were themselves members of the human-relations school. Fearing partisanship would color their descriptions of the traditional model, we turned to Hall (1963) and Pugh et al. (1968) for impartial descriptions of this bureaucratic paradigm. In a final effort to create a well-rounded climate index, we included hierarchical-structure factors (cf. Evan, 1963). It seems that Likert, as a proponent of the modern school, shared its preoccupation with interpersonal processes and, as a result, had overlooked structural variables.

In retrospect, our Profile has been imbued with the following positive attributes: 13 scales have been randomly inverted to cancel out the formation of response sets; there are no headings like "exploitive authoritative" or "participative group;" the wording of all anchors has been neutralized to reduce the social desirability of responses in any direction; these anchors have also been worded so as to fall more equidistantly along each continuum; the dimensions tapped and their anchors attempt to capture the crucial differences between classical and human-relations principles to bring them more in line with the definitions found in Chapter 4; and finally, as a measure of organizational climate, this instrument incorporated the critical features of climate, including some structural variables, that were revealed by our investigation of climate in Chapter 3. The format of Likert's Profile has been preserved--that is, the individual scales remain sensitive to climatic differences along specific dimensions, while the total score places the entire organization on a theory X-theory Y taxonomic continuum.

This account of the development of our Profile of Organizational Climate is directed mainly at answering questions about its content validity. Careful developmental procedures coupled with extensive construct explication of "climate" and the "classical-to-human relations" taxonomy have attempted to insure such validity. Naturally, our research has taken the appropriate steps to examine the Climate Profile's reliability and validity on empirical grounds (cf. Results, Chapter 7).

APPENDIX II

PROFILE OF ORGANIZATIONAL CLIMATE

EXPLANATION OF THE EXPERIMENT

You are being asked to take part in a study of different types of work settings. This experiment is being done by a graduate student for his Ph.D.

The questions that follow ask you about your place of work. To be sure that you understand exactly what place of work you should be discussing, it is indicated here:

_____

_____

Please answer all questions just in terms of this work setting. Take enough time to answer as accurately and as honestly as you can so that the responses will be scientifically valuable.

This questionnaire has been used in many kinds of organizations. Still, it is difficult to write questions in a way that is immediately clear to all people in every kind of job. If some questions seem hard to answer at first, try reading each question and then applying it to your particular situation. This approach will help you answer all the questions.

Because you are asked to be honest, you are promised that none of your answers will be seen by anyone else. To guarantee secrecy even more, your name should not be written anywhere on this form.

I want to personally thank you for your cooperation and I hope that these questions will be interesting for you. If after reading this anything is unclear, please feel free to call me. Also, if you would like a copy of the final results of this experiment, please let me know

John A. Langdale
Graduate Student
New York University
Evenings: 212-636-6056

PLEASE ANSWER THESE QUESTIONS

How would you describe your job within the work setting?

EMPLOYEE (not supervising or in charge of anyone else) _____

SUPERVISOR (supervising or in charge of someone else) _____

Have you worked in this setting for more than 3 months? Yes___ No___

What is your sex? Male___ Female___

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PROFILE OF ORGANIZATIONAL CLIMATE

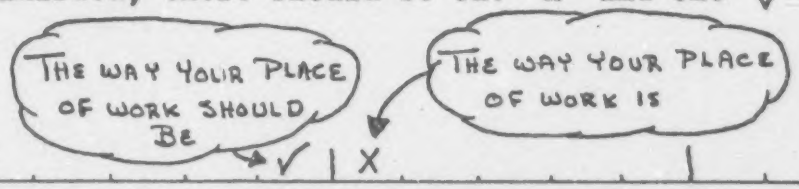
INSTRUCTIONS:

Below there are various lines (or "scales") and each one is clearly described underneath so that you will know what it means. Think of each scale as a continuous line running from an extreme at one end to an extreme at the other end. Please make two (2) marks on each line:

1. First, describe your place of work at the present time. Do this by putting an "X" anywhere along the line, right above the best description.
2. Second, ask yourself how your place of work could be made bette but keep in mind the kind of business it is and the type of people it employs. Show how you would make it better running by putting a check (✓) anywhere along the line, right above the best place.

These questions are general so talk about the average or typical case. Please, always remember that you are talking about a particular place of work-- the one written on the front page of this questionnair When you are finished, there should be one "X" and one "✓" on all the lines below.

EXAMPLE SCALE:



LEADERSHIP PROCESSES USED:

1. The emotional relationship between supervisors and the employees that they are in charge of.

Supervisors are polite to employees, but never express their feelings.	Supervisors are polite and sometimes friendly, but but do not usually express their feelings.	Supervisors are friendly with employees and usually express their feelings.	Supervisors are very friendly with employees and always express their feeling

2. The degree to which supervisors allow their employees to influence the supervisors' decisions.

Supervisors almost always allow their employees to join in and influence their decisions.	Supervisors frequently allow employees to join in and influence their decisions.	Supervisors sometimes allow employees to join in and influence their decisions.	Supervisors almost neve allow their employees t join in and influence their decisions.

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3. The amount of time that supervisors spend assigning work and making up schedules, setting up certain work goals, and watching the quantity and quality of employees' work.

Supervisors almost never do these things.	Supervisors sometimes do these things.	Supervisors frequently do these things.	Supervisors almost always do these things.

MOTIVATIONAL FORCES USED:

4. Why do employees work while on the job?

Because they can get money, promotions, and do not have to worry about losing their present jobs.	Mostly for money, promotions, and so they won't lose their jobs, but somewhat because they enjoy the people they work with and can express themselves.	Mostly because they enjoy the people they work with and can express themselves at work, but somewhat for money, promotions, and so they won't lose their jobs.	Almost completely because they enjoy the people they with and because they can express themselves at their

5. The way in which rewards or penalties are given out to employees for their work.

Formal rules are used by top management in rewarding and giving penalties to the employees.	Formal rules are used by all supervisors, but employees have a little control and few penalties are used.	Employees have a say in who gets rewards and there is almost no use of penalties.	Employees have as much or more say than supervisors in who gets rewarded and there is no use of penalties.

6. The amount of competition between employees, work groups, or departments in order to get more rewards or fewer penalties.

There is almost no competition.	There is some competition.	There is frequent competition.	Competition is almost always present.

7. The amount of responsibility that different types of employees have for the success of your organization or place of work.

Only top managent has the responsibility.	Supervisors at all levels have the responsibility.	Some of the responsibility rests with lower level employees.	Most of the responsibility rests with lower level employees.

COMMUNICATION PROCESSES:

8. The amount of times employees can talk or communicate about things other than the job they are doing.

Almost always.	Often.	Sometimes.	Almost never.

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9. The use of formal channels of communication (for example, not going over the boss's head, speaking to the right people, following procedures, using memos).

Formal channels are extremely important.	Formal channels are pretty important.	Formal channels are only somewhat important.	Formal channels are not important.

10. The amount of communication lower level employees give to their supervisors and top management (upward communication) vs. the amount of communication supervisors and top management give to the lower level employees (downward communication).

Formal communication is almost always from lower level employees to supervisors and top management (upward).	Mostly upward.	Mostly downward.	Formal communication is almost always from supervisors and top management to lower level employees (downward).

11. Top management and supervisors keep what they know to themselves vs. they share what they know with lower level employees.

Top management and supervisors are careful to keep what they know to themselves and tell employees just enough to let employees do their jobs.	They usually keep what they know to themselves, but will answer certain questions that are not directly about the job.	They usually tell employees what they know and will answer even questions not directly about the job.	Top management and supervisors tell the employees everything they know and answer any kind of question.

12. Lower level employees keep what they know to themselves vs. lower level employees share what they know with supervisors and top management.

Employees are careful to keep what they know to themselves unless the rules require them to tell something to top management and their supervisors.	They usually keep what they know to themselves, but will answer some questions that they are not required to by the rules.	They usually tell top management and their supervisors what they know and will answer even questions not directly about the job.	Employees tell top management and their supervisors everything they know and answer any kind of question.

13. The use that supervisors and top management make of extra sources of information like T.V. monitors in the work setting, counters or other production measures, anonymous suggestion boxes, opinion surveys, etc. so that they can find out more.

These sources of information are almost never used by supervisors and top management.	They are sometimes used.	They are frequently used.	These sources of information are almost always used by supervisors and top management.

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14. The way in which employees with equal status or similar positions communicate with each other (for example, the way they talk or write to each other).

They are very careful about what they say to each other and always use the proper channel.	They are often careful about what they say to each other and usually use the proper channel.	They are usually relaxed about what they say to each other and often do not use the formal channel.	They are always relaxed about what they say to each other and almost never use the formal channel.

INTERACTION-INFLUENCE PROCESSES USED:

15. The amount of influence that lower level employees have on their supervisors and top management (upward influence) vs. the amount of influence supervisors and top management have on the lower level employees (downward influence).

Almost all influence comes from the lower level employees and is aimed at supervisors and top management (upward).	Mostly upward.	Mostly downward.	Almost all influence comes from supervisors and top management and is aimed at lower level employees (downward).

16. The use of formal channels of influence (for example, unions, meetings, votes, following procedures, not going over the boss's head).

Formal channels are extremely important.	Formal channels are pretty important.	Formal channels are only somewhat important.	Formal channels are not important.

17. The number of times different employees try to influence the behavior and thinking of other employees.

People try to influence each other very often and this can happen between any two people regardless of their job levels or positions at work.	People try to influence each other often, but one lower level employee usually would not try to influence a member of top management.	People sometimes try to influence each other, but it is clear that one lower level employee would not try to influence a member of top management.	People do not usually try to influence each other and one lower level employee would never try to influence a member of top management.

18. The amount of control that supervisors and top management have over the work methods, behavior, and goals of their employees.

Top management and supervisors have a great deal of control in certain situations, especially when they can give out large rewards and penalties.	They have control in certain situations when they can give out large rewards.	They have some control in many situations, but this control is little when employees do not want to be controlled.	Top management and supervisors have some control in most situations, but this control is very small when employees do not want to be controlled.

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19. The amount of control that lower level employees have over the work methods, behavior, and goals of their supervisors and top management.

Lower level employees have almost no control.	Lower level employees have some control, but mostly through unions and the proper channels.	Lower level employees have a lot of control.	Lower level employees have almost total control.

DECISION-MAKING PROCESSES USED:

20. The level at which decisions are made which everyone is supposed to follow (for example, are these decisions made by top management, middle level supervisors, or lower level employees?).

Decisions about almost everything, including general policies, are made by lower level employees.	A few decisions are made by top management and middle level supervisors, but many decisions are made by lower level employees.	Most decisions are made by top management, but some decisions are made by middle level supervisors who then check back with top management.	Almost all decisions are made only by top management.

21. How is the power to make decisions given out to the different employees? Is this power to make decisions given out on the basis of professional or technical training and education?

All employees, regardless of their training and education, are given power to make decisions.	Most of the time power to make decisions is given to everyone, but sometimes it is given out on the basis of training and education.	Most of the time power to make decisions is given to those who have training and education, thus leaving out most of the lower level employees.	Power to make decisions is only given to those who have training and education, almost always leaving out lower level employees.

22. The control or power that lower level employees have over decisions about their work (for example, who should do what work, how the work is to be done).

Lower level employees have almost no control over the decisions being made and most of the time are not asked what they think.	They have some control over the decisions being made and are sometimes asked what they think.	They have a lot of control over the decisions being made and are often asked what they think.	Lower level employees have almost total control over the decisions being made and are always asked what they think.

23. Decisions are made in groups (in employee meetings, by vote, etc.) vs. decisions are made in private on a person-to-person basis.

Decisions are made almost always in private and on a person-to-person basis.	Decisions are usually made in private and on a person-to-person basis.	Most decisions are made by groups of employees.	Decisions are almost always made by groups of employees.

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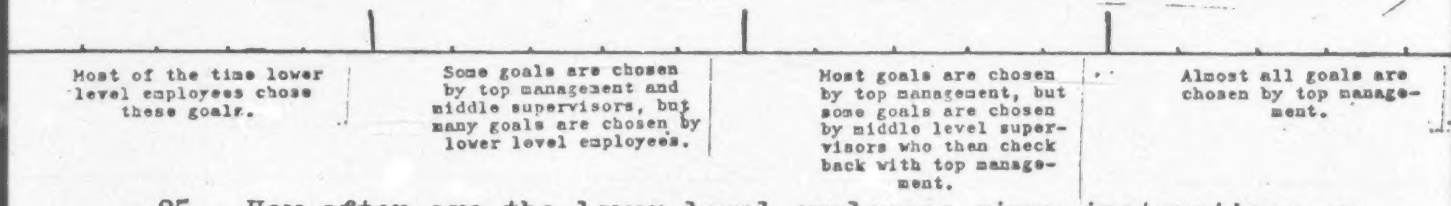
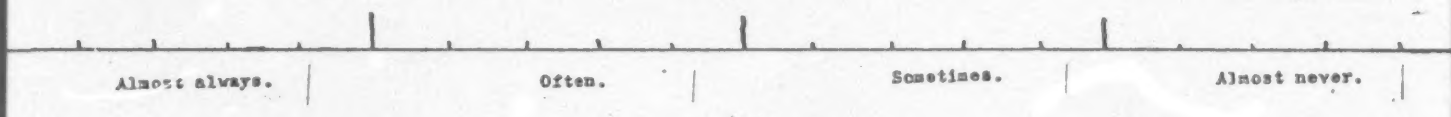
GOAL SETTING AND ORDERING:

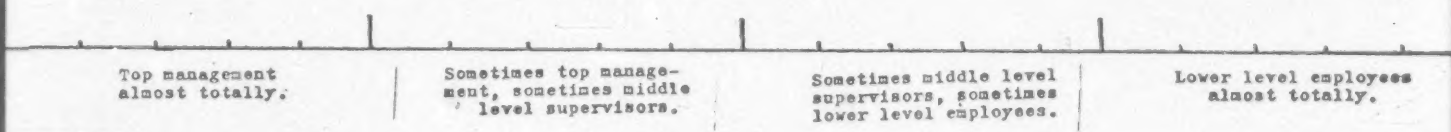
24. Who choses the work goals, production targets or objectives that everybody is supposed to try to reach? Do members of top management or middle level supervisors or lower level employees set these goals?


Most of the time lower level employees chose these goals.
Some goals are chosen by top management and middle supervisors, but many goals are chosen by lower level employees.
Most goals are chosen by top management, but some goals are chosen by middle level supervisors who then check back with top management.
Almost all goals are chosen by top management.

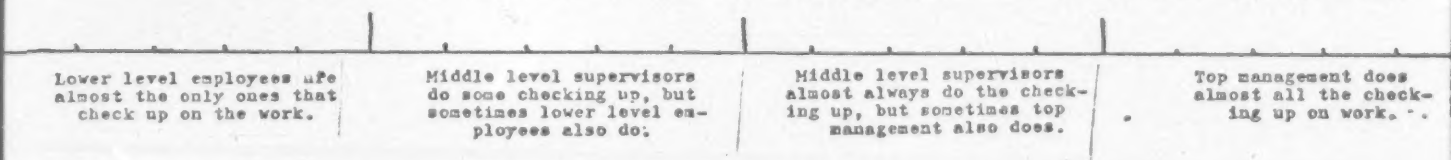
25. How often are the lower level employees given instructions or orders about what kinds of work goals or targets they should be trying to reach (in manuals, speeches, written directives, memos, etc.)?



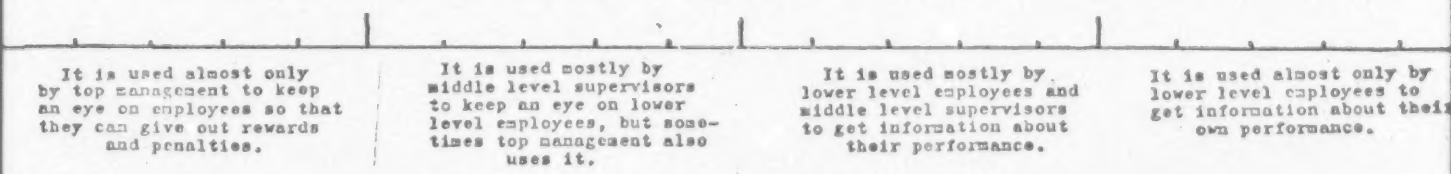
26. Who watches out for the quality and quantity of employees' work? Is it mostly members of top management or middle level supervisors or lower level employees?


Top management almost totally.
Sometimes top management, sometimes middle level supervisors.
Sometimes middle level supervisors, sometimes lower level employees.
Lower level employees almost totally.

27. All places of work have some way of checking up on their output, performance, or work. Who does most of this checking up-- top management, middle level supervisors, or lower level employees?


Lower level employees are almost the only ones that check up on the work.
Middle level supervisors do some checking up, but sometimes lower level employees also do.
Middle level supervisors almost always do the checking up, but sometimes top management also does.
Top management does almost all the checking up on work.

28. After the output, performance, or employees' work has been checked up on, who uses this information and why?


It is used almost only by top management to keep an eye on employees so that they can give out rewards and penalties.
It is used mostly by middle level supervisors to keep an eye on lower level employees, but sometimes top management also uses it.
It is used mostly by lower level employees and middle level supervisors to get information about their performance.
It is used almost only by lower level employees to get information about their own performance.

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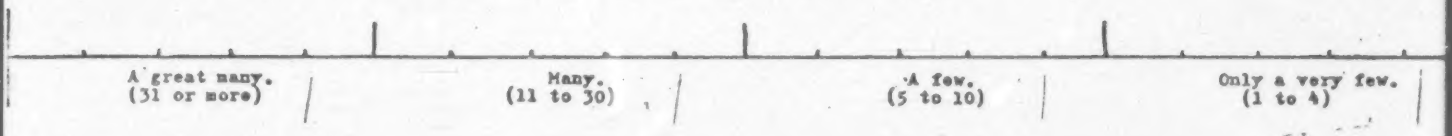
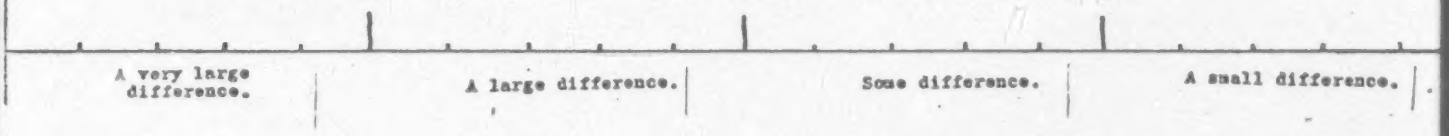
ORGANIZATIONAL STRUCTURE:

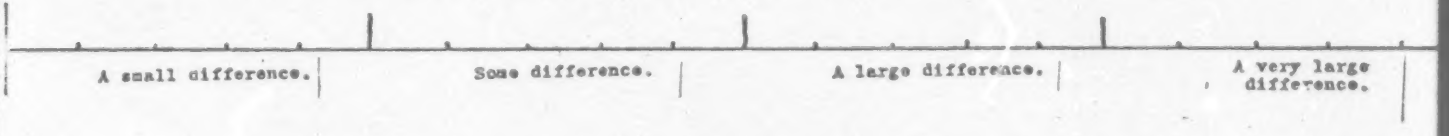
29. Span of Control: How many employees does the average supervisor have directly under him, approximately?



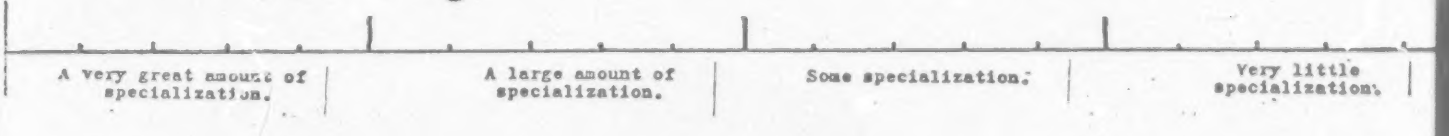
30. Is there a big difference between the amount of money that the average lower level employee gets and the average supervisor gets (in salary, expense accounts, charge accounts, profit sharing, shares of the company's stocks, etc.)?



31. Is there a big difference between the amount of education, training, and/or experience that the average lower level employee has and the average supervisor has?



32. How much are the jobs at your place of work specialized? For example, does the average employee have only a limited number of things to do out of all the things that are done in your work setting?


A very great amount of specialization.
A large amount of specialization.
Some specialization.
Very little specialization.

Please check to see whether you have an "X" and a check(✓) on each of the lines above

-------- THE END --------

APPENDIX III

DESCRIPTION OF ORGANIZATIONAL CONTINGENCIES

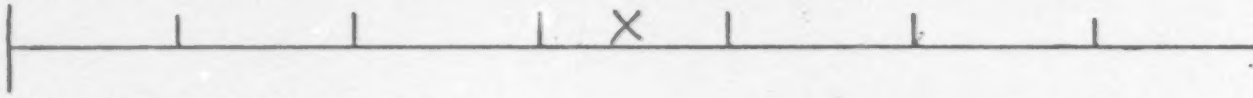
DESCRIPTION OF ORGANIZATIONAL CONTINGENCIES

INSTRUCTIONS:

In the questions below, you are asked to describe things about your place of work, the jobs that employees do, and your own beliefs. These questions are general so describe the average or typical case. Do this by placing an "X" on each line right above what you think is the best place.

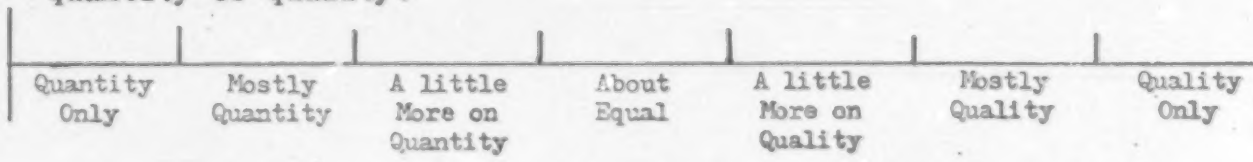
Please, always remember that you are describing a particular plac of work-- the one written on the front page of this questionnaire. When you are finished, there should be an "X" on all the lines below.

EXAMPLE SCALE:



QUANTITY VS. QUALITY OF WORK:

1. Because of the different kinds of work they do, products they make, or services they perform, some places of work stress the amount of work done (quantity); other work places stress careful or precise work (quality). Does your place of work stress quantity or quality?



COORDINATION OF JOBS:

2. Different places of work have employees that do different kinds of jobs. In some places, these jobs have to be coordinated or looked after by a central person, usually a supervisor; in other places, jobs can be done with little or no coordination by someone else. In your work place, does the average job need this kind of coordination?

-- Go on to next page --

INTERDEPENDENCE BETWEEN JOBS:

3. Looking at the jobs that employees do, how often do these jobs require the average employee to rely or depend on his fellow workers to finish his own job?

Almost Never	Not often at all	Not very Often	Sometimes	Often	Very Often	Almost Always

INTERACTION BETWEEN TASK PERFORMERS:

4. Different jobs require or allow more or less contact, talking, or other communication between the employees who are working. As part of the work, do jobs in your work place require or allow these kinds of contact between employees?

Almost Never	Not often at all	Not very Often	Sometimes	Often	Very Often	Almost Always

ROUTINIZATION OF JOBS:

5. Some jobs can be done by following a written list of steps or procedures, while other jobs just cannot be done that way. Can jobs in your work place be done by using a step-by-step list of procedures?

Very Easily	Easily	Somewhat Easily	Somewhat Hard	Hard	Very Hard	Almost Impossible

PROBLEM STRUCTURE IN THE JOB:

6. All employees have problems to handle, but in some jobs these problems are more simple while in other jobs they are more complex. In your place of work, does the average problem have a definite, clear-cut solution or answer?

Almost Always	Very Often	Often	Sometimes	Not very Often	Not often at all	Almost Never

-- Go on to next page --

PRIVATE FEEDBACK TO TASK PERFORMER:

7. Some jobs give the employee actually doing them more information than anyone else about how the job is going. Other jobs are of a kind that give a supervisor more information about how the job is going. For the average job at your place of work, who gets the most information about an employees job?

The Supervisor Only	The Supervisor Mostly	The Supervisor More	Equally to Both	The Employee More	The Employee Mostly	The Employee Only

ORGANIZATIONAL SIZE:

8. How many people, approximately, would you say are employed at your place of work?

3000 or more	1000-2999	400-999	399-200	100-199	40-99	2-39

ATTITUDE SURVEY:

The next set of questions try to get a "feel" for your attitudes or beliefs. Use the lines below in the same way as before by putting an "X" over the best place.

9. I believe that everyone should submit to proper authority, put their faith in strong leadership, and be willing to make sacrifices for the good of their place of work, community, and country.

Strongly Agree	Agree	Agree Somewhat	Neutral	Disagree Somewhat	Disagree	Strongly Disagree

10. I believe in and uphold traditional values (support the law, democracy, our government, the family structure, etc.) and I am against radicals and communism.

Strongly Agree	Agree	Agree Somewhat	Neutral	Disagree Somewhat	Disagree	Strongly Disagree

-- Go on to next page --

11. I believe that those who break the law and go against traditional values should be harshly punished.

Strongly Agree	Agree	Agree Somewhat	Neutral	Disagree Somewhat	Disagree	Strongly Disagree

12. I believe there are too many people wasting time with sentimentali and idle thinking and not enough people dealing with their problem directly and getting down to work.

Strongly Agree	Agree	Agree Somewhat	Neutral	Disagree Somewhat	Disagree	Strongly Disagree

13. I believe in at least some stereotypes and superstitions whether o not some intellectuals attack them.

Strongly Agree	Agree	Agree Somewhat	Neutral	Disagree Somewhat	Disagree	Strongly Disagree

14. I respect the physical strength and active, red-blooded way of life that Americans used to have.

Strongly Agree	Agree	Agree Somewhat	Neutral	Disagree Somewhat	Disagree	Strongly Disagree

15. I believe that human nature is directed by self-interest rather than love of fellow men since most people are fighting to survive in a hostile world.

Strongly Agree	Agree	Agree Somewhat	Neutral	Disagree Somewhat	Disagree	Strongly Disagree

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EXTERNAL STRESS CONDITIONS:

16. Certain places of work are under more pressure or stress from outside than are other places. Here are some examples of external stress: poor business or economic conditions, outside union pressure or strikes, few good outside people applying for jobs, other companies trying to hurt business, shortage of necessary materials, pressure or threats from clients. How much is your place of work under pressures like these?

Under Extreme Stress	Under Much Stress	Under Some Stress	Under Average Stress	Under Little Stress	Under very Little Stress	Under No Stress

INTERNAL STRESS CONDITIONS:

17. Certain places of work are under more pressure or stress from inside than are other places. Here are some examples of internal stress: internal conflict or friction among employees, lack of trust among employees, supervisors pushing employees to work too hard, hostility toward top management, employees destroying company property, uncomfortable or dangerous working conditions, accidents, many employees leaving their jobs to work somewhere else, employees not being satisfied with their jobs. How much is your place of work under pressures like these?

Under Extreme Stress	Under Much Stress	Under Some Stress	Under Average Stress	Under Little Stress	Under very Little Stress	Under No Stress

Please check to see if every line has an "X" on it

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APPENDIX IV

INDICES OF BUREAUCRATIC STRUCTURE

AND

INDEPENDENT MEASURES OF CONTINGENCIES

SOME OBJECTIVE PROPERTIES OF THE ORGANIZATION

You are being asked to take part in a study of different types of work settings. This experiment is being done by a graduate student for his Ph.D.

In order to obtain objective, descriptive information about your work setting, we have turned to you as a person who has special technical knowledge. The questions to follow ask you for specific information. To be sure that you understand exactly what place of work you should be describing, it is indicated here:

_____

_____

Please answer all questions just in terms of this work setting. Take enough time to answer as accurately and as honestly as you can so that the responses will be scientifically valuable.

This questionnaire has been used in many kinds of organizations. Still, it is difficult to write questions in a way that is immediately clear to all people in every situation. If some questions seem hard to answer at first, try reading each question and then applying it to your particular situation. This approach will help you answer all the questions.

Because you are asked to be honest, you are promised that none of your answers will be seen by anyone else. To guarantee secrecy even more, your name should not be written anywhere on this form.

I want to personally thank you for your cooperation and I hope that these questions will be interesting for you. If after reading this anything is unclear, please feel free to call me. Also, if you would like a copy of the final results of this experiment, please let me know.

John A. Langdale
Graduate Student
New York University
Evenings: 212-636-6056

I. Formalization

Below there is a list of various kinds of documents or forms that can circulate in an organization. Please indicate those forms that are present in the place of work that your are describing by placing a check next to them.

Written contracts of employment(legal contract, letter of appointment, list of terms)
Handbooks
Organizational chart
Written operating instructions for workers
Written job descriptions
Manual of procedures
Written policies
Workflow or production schedules
Research reports
Management approval in writing required for certain decisions
Notification of appointment of new employees
Suggestion boxes, forms, or other written schemes
Conference reports
Minutes for senior executive meetings
Agendas for senior executive meetings
Minutes for production meetings
Agendas for production meetings
Written reports submitted in production meetings
Dismissal form or report recording the dismissal
House journal
Record of inspections performed
Work study records
Records of worker's work output
Records of worker's hours
Petty cash vouchers, authorizing and/or recording petty expenditures
Documents stating the work done or to be done for a given task
Appeal forms against dismissal
Written trade union procedures for negotiation
Written history of the organization

II. Degree of Specialization Instituted by the Place of Work

We are attempting to discover how much your work setting formally (officially) divides the work among its employees. Please, always remember that you are describing a particular place of work— the one written on the front page of this questionnaire.

Below there are 16 categories; each is numbered and each has several subdivisions listed under it. First, place a check beside each major category to which one or more employees is assigned full-time. Second, if one of these major categories has 2 or more employees assigned to it, place a check beside the subdivision to which they are assigned if their duties can be so differentiated. When you are finished, where ever there is a check, it should stand for an employee assigned to that task full-time.

---

1. Public Relations: develop, legitimize, and symbolize the organization charter. ___
   - a. publicity staff _____
   - b. public relations _____
   - c. customer relations _____
   - d. display _____
   - e. publicity by product _____
   - f. overseas relations _____

2. Sales and Service: dispose of, distribute, and service organizational output. ___
   - a. sales or service _____
   - b. pricing and order _____
   - c. sales by customer or product _____
   - d. sales records _____
   - e. export sales _____
   - f. service by customer or product _____

3. Transport: carry outputs and resources from place to place. ___
   - a. drivers _____
   - b. dispatchers _____
   - c. administration and planning _____
   - d. drivers by vehicle or product _____
   - e. dispatch specialized by product _____
   - f. travel and excursions _____
   - g. planning and administration specialized by product _____

4. Employment: acquire and allocate human resources. ___
   - a. separate employment services for different parts of the organization _____
   - b. separate employment services for the type of employee _____
   - c. administration and records _____
   - d. interviews _____

Specialization (cont'd)

5. Training: develop and transform human resources.

a. operative training while on the job _____
b. apprentice training _____
c. general education _____
d. clerical training _____
e. management training _____
f. sales training _____

6. Welfare and Security: maintain human resources and promote their well-being.

a. security staff _____
b. nurses _____
c. canteen staff _____
d. welfare officer _____
e. safety officer _____
f. fire service _____
g. sports and social _____
h. other medical _____
i. suggestions officer _____

7. Buying and Stock Control: obtain and control materials and equipment.

a. storekeeper _____
b. buyers _____
c. storekeepers specialized by product or material _____
d. stock control _____
e. buyers specialized by product or material _____
f. stock controllers specialized by product or material _____
g. administrator _____
h. administrator specialized by product or material _____

8. Maintenance: maintain and erect buildings and equipment.

a. engineer _____
b. machine maintenance _____
c. building maintenance _____
d. electrical maintenance _____
e. machine maintenance specialized by machine _____
f. new-works force _____
g. surveyor or architect _____
h. instrument maintenance _____
i. research into maintenance _____
j. electrical maintenance _____

9. Accounts: record and control financial resources.

a. wage clerk _____
b. cost clerk _____
c. ledger clerk _____
d. cashier _____
e. financial accounting _____
f. costing specialized by product, department, etc. _____
g. financial data processing _____
h. salaries payment _____
i. auditing _____
j. budgeting _____
k. cost follow up _____

Specialization (cont'd)

10. Production Control: control of workflow.

a. progress reports _____
b. planning and scheduling _____
c. progress reports specialized by tasks _____
d. scheduling specialized by tasks _____
e. machine loading _____

11. Inspection: control quality of materials and equipment and outputs.

a. product inspection _____
b. product inspection by specialized stages _____
c. raw material control _____
d. laboratory test of product _____
e. division of raw product _____
f. inspection standards _____
g. policy and administration of inspection _____

12. Methods: assess and devise ways of producing output.

a. work studies _____
b. work studies specialized by task _____
c. methods _____
d. policy and administration _____
e. process planning _____
f. production engineering _____
g. layout _____
h. draftsman _____

13. Design and Development: devise new outputs, equipment, and processes.

a. new product research _____
b. drawing office _____
c. process and equipment research _____
d. new product research specialized by product _____
e. division into mechanical and electrical _____
f. pure research _____
g. administration of research _____

14. Organization and Methods: develop and carry out administrative procedures.

a. statistical clerks _____
b. organization and methods _____
c. subdivision of statistics _____
d. filing and postage _____
e. committees and policies _____

15. Legal: deal with legal and insurance requirements.

a. legal or insurance _____
b. share registrar _____
c. legal section subdivision _____
d. legal inquiries _____

16. Market Research: acquire information on operational fields.

a. market research _____
b. market research specialized by product _____
c. economic analysis _____

iii. Degree of Standardisation (Control) Incorporated into the Formal Structure of the Work Place

Below are listed a series of practices sometimes required by the rules of an organization. Following each practice is a series of possible ways this practice can be carried out. Please circle that answer which best describes the way your place of work carries out the practice. Always keep in mind the particular work place you are being asked to describe.

---

1. Inspection of work output or products.

   Frequency: 100%(1) random sample(2) haphazard(3) none(4)

   Range: all(1) all new (2) some(3) none(4)

   Method: measurement(1) attributes(2) visual(3) none(4)

   Type: raw materials; process; final inspection(1)
   process; final inspection(2)
   of raw materials or process or final inspection(3)
   none(4)

2. Stock control.

   Stock taking: daily(1) weekly(2) monthly(3) quarterly(4) semiannually(5)
   yearly(6) never taken(7)

3. Operational control.

   Period covered by clear plans: over 1 year(1) 1 year(2) quarter(3) month(4) week(5)
   1 day(6)

   Scheduling: continuous(1) daily(2) weekly(3) monthly(4) as needed(5)

   Progress checking: regular(1) irregular(2) none(3)

   Maintenance: programmed replacements(1) planned maintenance(2) breakdown procedure(3)
   no procedure(4)

4. Financial control.

   Type: marginal costs(1) standard costs(2) budgeting(3) job costing(4)
   whole firm, historical(5)

   Range: all activities(1) all products(2) some products(3) one product(4)
   whole firm(5)

   Comparison of spending with budget: continually(1) weekly(2) monthly(3)
   quarterly(4) half-yearly(5) yearly(6) none(7)

5. People; controls.

   Job manuals: yes(1) no(2)

   Apprenticeships: yes(1) no(2)

   Task descriptions: yes(1) no(2)

   Rate fixing: yes(1) no(2)

   Explicit procedures for dismissing staff: yes(1) no(2)

   Explicit procedures for penalising offenses: yes(1) no(2)

People: controls.(cont'd)

Work studies: on all direct workers+support staff(e.g.,maintenance)+clerks(1)
on all direct workers+support staff(2)
on all direct workers(3)
on some direct workers(4)
no work studies(5)

Job evaluations: on all direct workers+support staff+clerks(1)
on all direct workers+support staff(2)
on all direct workers(3)
on some direct workers(4)
no job evaluations(5)

6. Communication:

Decision seeking: standardized channels(1) semistandardized(2) as needed(3)

Decision conveying: standardized channels(1) semistandardized(2) as needed(3)

7. Ideas:

Research and development: research and development program(1) development program(
development as needed(3)

Procedures for obtaining ideas: conference attending, conference reporting,
periodicals circulation, periodicals reporting,
suggestion scheme. How many procedures are
used? 0 1 2 3 4 5

8. Materials.

Ordering procedures: guaged to production plans(1) as needed(2)

Buyer's authority over what to buy: limited(1) unlimited(2)

Buyer's authority over whom to buy from: limited(1) unlimited(2)

Buyer's authority over how much to buy: limited(1) unlimited(2)

Procedure for buying nonstandard items: yes(1) no(2)

Procedure for notifying head office of purchases: yes(1) no(2)

Bidding procedure: yes(1) no(2)

Contracts procedure: yes(1) no(2)

9. People: recruiting.

Promotion procedure: internal advertisement and selection(1)
by grade + qualifications(2)
as needed(3)

Selection of subordinates: outside appointer(1) testing procedure(2)
interview by personnel officer(3)
interview by supervisor(4)

Selection of foremen or middle managers: outside appointer(1) testing procedure(2)
interview by personnel officer(3)
interview by supervisor(4)

Selection of executives: outside appointer(1) grading system or selection board(2)
interview by personnel officer(3) interview by supervisor

Standardization(cont'd)

People: recruiting.(cont'd)

Recruitment policy: yes(1) no(2)

Central recruiting procedure: yes(1) no(2)

Central interviewing procedure: yes(1) no(2)

Standard procedure for getting increases in staff: yes(1) no(2)

10. People: training.

Apprenticeships: yes(1) no(2)

Procedures allowing employees to be released during working hours to outside educational services: yes(1) no(2)

Direct worker training for the job: yes(1) no(2)

Courses arranged for management: yes(1) no(2)

Management trainees: yes(1) no(2)

11. Activities:

House journals: regular(1) irregular(2) none(3)

Ceremonies: regular(1) irregular(2) none(3)

Sports and social activities: regular(1) irregular(2) none(3)

Organizational emblem, trademark, or symbol: yes(1) no(2)

Participation in exhibitions and displays: regular(1) irregular(2) none(3)

Conference attendance: regular(1) irregular(2) none(3)

Induction courses: for all(1) for many(2) for a few(3) for no employees(4)

Handbooks provided for employees: for all(1) for many(2) for a few(3) for none(4)

Uniforms provided for employees: for all(1) for many(2) for a few(3) for none(4)

12. Sales.

Catalog: ·giving prices of standard and non-standard items, giving delivery dates, and subject to regular revie. and revision(1)
·giving prices of standard and non-standard items, subject to review(2)
·giving prices of only standard items and subject to review(3)
·giving only prices of standard items(4)
·giving only products(5)
·no catalog(6)

Sales policy: clear, detailed sales policy(1) general and specific aims(2)
only general aims(3) no formal policy(4)

Market research: market research involving highly specific assessment of customers(1)
systematic market research or market intelligence(2)
circulating only potential customers(3)
circulating only current customers(4)
contacts with existing customers(5)

13. Miscellaneous.

Personnel reports and statistics: on sick days, timekeeping, absence, labor turnover, accidents, projected retirements. How many of the above? 0 1 2 3 4 5 6

IV. Configuration

What is the ratio of superiors(those with supervisory responsibility) to subordinates those with no supervisory responsibility)?

Number of subordinates_____: Number of superiors_____

What is the mean(average) salary level of superiors? _____per year

What is the mean(average) salary level of subordinates? _____per year

Height of Organization: How many employees come between the top supervisor and the lowest subordinate on your organizational chart? _____

Subordinate ratio: How many direct workers are there per first-line supervisor?

_____: 1

Top supervisor's span of control: How many subordinates(irrespective of status) report directly to the top supervisor in your organization with no intervening person interrupting that reporting?

_____

V. Objective Description of Some Situational Contingencies

In the questions below, you are asked to describe certain things about your place of work, the jobs employees do, and the employees' attitudes or beliefs. These questions are sometimes general so describe the average or typical case.

Please, always remember that you are talking about a particular place of work— the one written on the front page of this questionnaire. After each question, there appear several possible answers. Pick the answer which describes your work place the best and circle that answer.

PRODUCTION OR SERVICE GOALS

When evaluating a worker's, a unit's, or a department's performance, what criterion or yardstick do supervisors and top management stress the most? the quantity of output(1)
the quality of output(2)

When keeping records of workflow, production, performance or service, which set of records is more complete or kept more accurately? quantity of output records(1)
quality of output records(2)

TASK COORDINATION

Do supervisors need to be directly informed by or watch even the best employees perform their tasks in order for the work to be carried out and run smoothly? yes(1) no(2)

Could the best of employees carry their tasks to successful completion without guidance or direction from their immediate supervisor? impossible(1) improbable(2) possible(3) with ease(4)

TASK INTERDEPENDENCE

Could a capable worker complete his task successfully without relying on a coworker to help him in the actual task, supply him with needed materials, remove completed work, etc.? with ease(1) possible(2) improbable(3) impossible(4)

Once a given task is assigned to an individual worker, is he the only one who works on that task from beginning to end? yes(1) no(2)

TASK INTERACTION

Does the nature of the task itself require that employees communicate with each other in order to complete their assignments? almost never(1) infrequently(2) frequently(3) almost continually(4)

TASK INTERACTION(cont'd)

Does the work situation itself separate or isolate workers geographically or in terms of space so that their communication or interaction is limited? yes(1) no(2)

TASK ROUTINIZATION

Given the nature of most tasks being performed by subordinates, can they be broken down into clear procedural steps that become routine? with ease(1) somewhat easily(2) somewhat difficult(3) impossible(

TASK PROBLEM STRUCTURE

How often is the average subordinate asked to solve problems which have a definite, clear-cut answer or at least clear methods of working out an answer?
almost continually(1) frequently(2) seldom(3) almost never(4)

PRIVATE FEEDBACK TO TASK PERFORMER

Because of the nature of the task, does the supervisor have to rely on the subordinat to supply him with information about how the subordinate's job is going? no(1) yes(2)

Without information from the subordinate, can the supervisor know as much about how the job is going as the subordinate does? yes(1) no(2)

ORGANIZATIONAL SIZE

Please record the number of people employed at your place of work: _____

ATTITUDES HELD BY THE EMPLOYEES AT YOUR PLACE OF WORK

The next set of questions try to get a "feel" for the kind of attitudes or beliefs held by the majority of the people in your organization or place of work. Although it is unlikely that you know everyone in this work setting, by using the attitudes of those you are familiar with and your general impressions of the rest, try to give approximate answers.

Most believe that everyone should submit to proper authority, put their faith in strong leadership, and be willing to make sacrifices for the good of their place of work, community, and country. strongly agree(1) agree(2) agree somewhat(3) neutral(4) disagree somewhat(5) disagree(6) strongly disagree(7)

Most believe in and uphold traditional values (support the law, democracy, our government, the family structure, etc.) and are against radicals and communism. strongly agree(1) agree(2) agree somewhat(3) neutral(4) disagree somewhat(5) disagree(6) strongly disagree(7)

Most believe that those who break the law and go against traditional values should be harshly punished. strongly agree(1) agree(2) agree somewhat(3) neutral(4) disagree somewhat(5) disagree(6) strongly disagree(7)

Most believe that there are too many people wasting time with sentimentality and idle thinking and not enough people dealing with their problems directly and getting down to work. strongly agree(1) agree(2) agree somewhat(3) neutral(4) disagree somewhat(5) disagree(6) strongly disagree(7)

Most believe in at least some stereotypes and superstitions whether or not some intellectuals attack them. strongly agree(1) agree(2) agree somewhat(3) neutral(4) disagree somewhat(5) disagree(6) strongly disagree(7)

Most respect the physical strength and active, red-blooded way of life that Americans used to have. strongly agree(1) agree(2) agree somewhat(3) neutral(4) disagree somewhat(5) disagree(6) strongly disagree(7)

Most believe that human nature is directed by self-interest rather than love of fellow men since most people are fighting to survive in a hostile world. strongly agree(1) agree(2) agree somewhat(3) neutral(4) disagree somewhat(5) disagree(6) strongly disagree(7)

EXTERNAL STRESS CONDITIONS

Certain places of work are under more pressure or stress from outside than are other places. Here are some examples of external stress: poor business or economic conditions, outside union pressure or strikes, few good outside people applying for jobs, other companies trying to hurt business, shortage of necessary materials, pressure or threats from clients. How much is your place of work under pressures like these? under extreme stress(1) under much stress(2) under some stress(3) under average stress under little stress(5) under very little stress(6) under no stress(7)

INTERNAL STRESS CONDITIONS

Certain places of work are under more pressure or stress from inside than are other places. Here are some examples of internal stress: internal conflict or friction among employees, lack of trust among employees, supervisors pushing employees to work too hard, hostility toward top management, employees destroying company property, uncomfortabe or dangerous working conditions, accidents, many employees leaving their jobs to work elsewhere, low employee morale or job satisfaction. How much pressure like this is your place of work under? under extreme stress(1) under much pressure(2) under some stress(under average stress(4) under little stress(5) under very little stress(6) under no stress(7)

APPENDIX V

DESCRIPTIVE DATA:

CLIMATE PROFILE AND CONTINGENCIES

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APPENDIX V

Descriptive Data:
Climate Profile and Contingencies

Climate item	Total sample (n=340)		Supervisors (n=170)		Subordinates (n=170)	
	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD
1	9.86	3.15	10.26	3.31	9.45	3.00
2	9.02	3.03	9.05	3.04	8.99	3.08
3	10.01	2.88	10.02	2.82	9.99	3.05
4	9.04	3.87	8.89	3.81	9.18	3.99
5	7.58	3.38	7.71	3.28	7.45	3.53
6	12.09	3 33	12.09	3.60	12.09	3.18
7	10.31	2.61	10.18	2.54	10.44	2.79
8	10.66	3.07	10.98	2.89	10.34	3.33
9	9.23	3.58	9.32	3.65	9.14	3.60
10	8.79	3.06	8.67	3.63	8.91	3.18
11	8.91	2.95	9.24	3.09	8.59	2.88
12	9.47	3.17	9.54	3.79	9.41	3.10
13	14.96	3.25	15.11	3.18	14.82	3.30
14	12.91	3.09	12.98	3.01	12.85	3.21
15	7.40	2.68	7.53	3.34	7.28	2.69
16	9.96	3.48	10.18	3.90	9.74	3.47
17	11.54	3.40	12.04	3.86	11.05	3.42
18	9.75	3.33	10.27	3.82	9.23	3.23
19	7.56	3.54	8.03	4.09	7.09	3.44
20	7.29	2.92	7.58	3.34	6.99	2.81
21	8.82	3.27	9.12	3.58	8.51	3.48
22	7.13	4.22	7.40	5.29	6.86	3.16
23	8.62	3.19	8.71	3.15	8.52	3.24
24	7.50	3.21	7.64	3.21	7.35	3.21
25	9.35	3.21	9.42	3.45	9.28	2.96
26	8.57	2.83	8.87	2.94	8.26	2.69
27	8.49	3.17	8.69	2.99	8.28	3.34
28	8.66	3.40	8.89	3.54	8.43	3.24
29	10.95	3.93	11.19	4.02	10.71	3.83
30	9.74	3.30	10.81	3.20	8.67	3.04
31	11.42	2.93	11.41	2.96	11.44	2.90
32	10.19	3.11	10.12	3.24	10.25	2.97
Climate total	305.69	62.91	311.94	61.61	299.44	63.74

APPENDIX V (cont'd)

Descriptive Data:
Climate Profile and Contingencies

Contingency scales	Total sample (n=340)		Supervisors (n=170)		Subordinates (n=170)	
	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD
1 Goals	4.13	1.06	4.17	1.03	4.10	1.08
2 Coordination	3.02	.98	2.97	.95	3.07	1.01
3 Interdependence	3.98	1.01	4.01	1.06	3.96	.96
4 Interaction	5.05	1.21	5.14	1.27	4.96	1.14
5 Routinization	3.93	1.53	4.09	1.52	3.77	1.53
6 Problem structure	3.84	1.41	4.00	1.42	3.68	1.39
7 Private feedback	3.92	1.11	3.94	1.09	3.89	1.14
8 Unit size	4.66	1.70	4.67	1.71	4.65	1.68
9 Authoritarianism	3.65	1.09	3.69	1.12	3.61	1.06
10 External stress	3.38	.94	3.28	.92	3.38	.96
11 Internal Stress	3.37	.98	3.35	.99	3.39	.98

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APPENDIX VI

SCATTERGRAMS AND REGRESSION LINES

BETWEEN ENVIRONMENTAL CONTINGENCIES AND

CLIMATE PREFERENCES

Figure A
Scattergram and Regression Line Between Goal Emphasis and Climate Preference

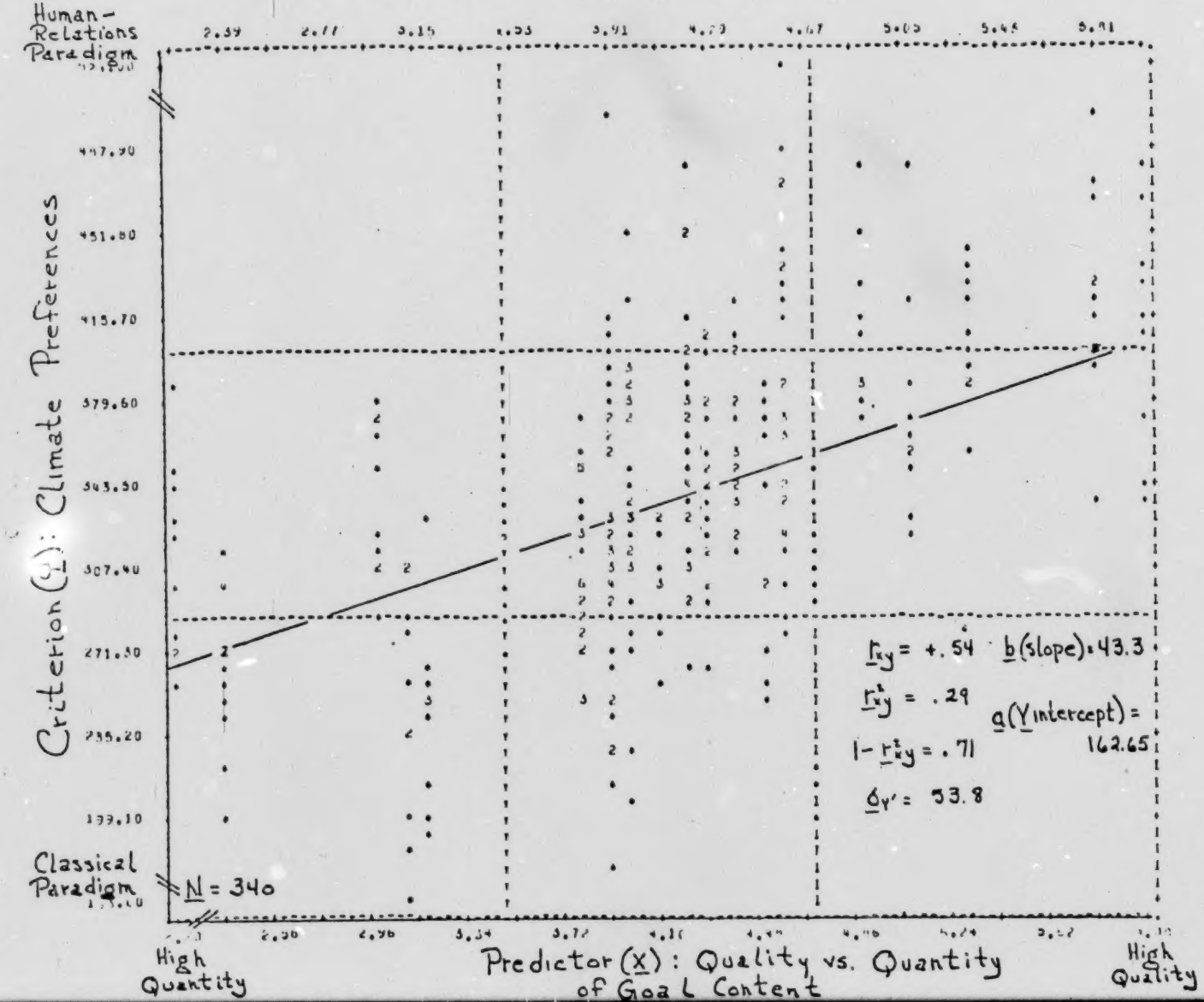

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Figure B
Scattergram and Regression Line Between Task-Necessitated Coordination and Climate Preference

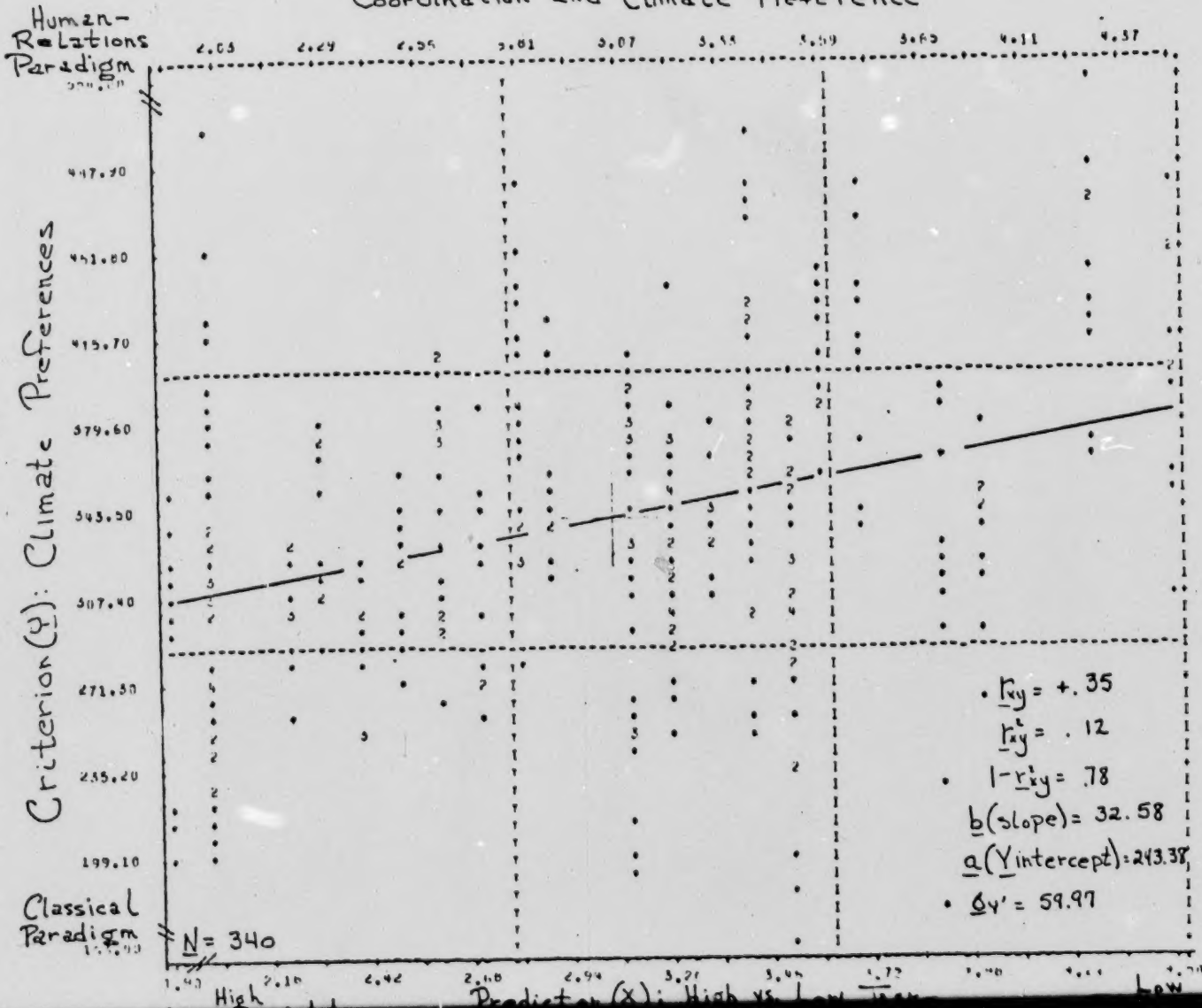

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Figure C
Scattergram and Regression Line Between
Task Interdependence and Climate Preference

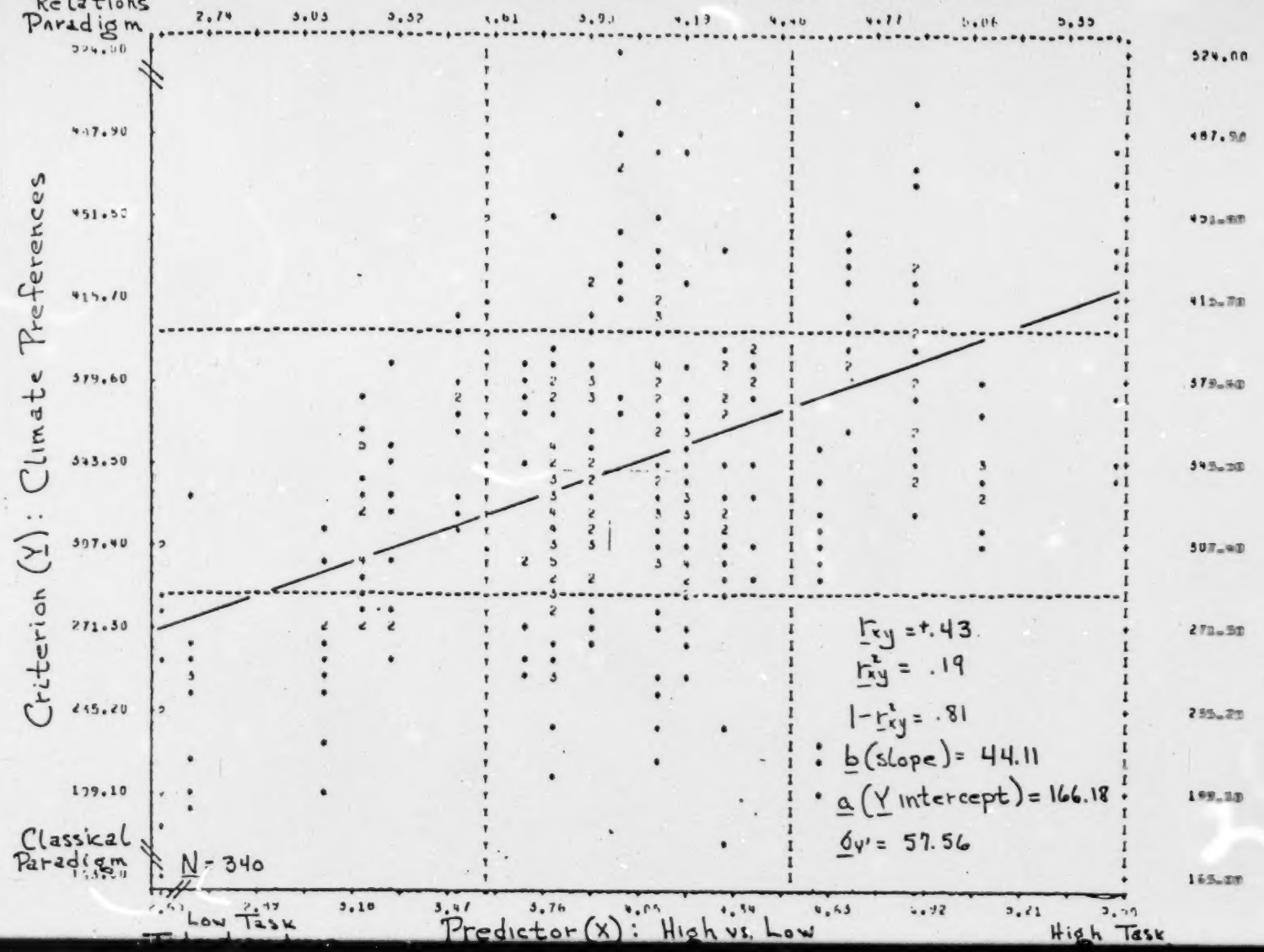

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Figure D

Scattergram and Regression Line Between Task-Related Interaction and Climate Preference

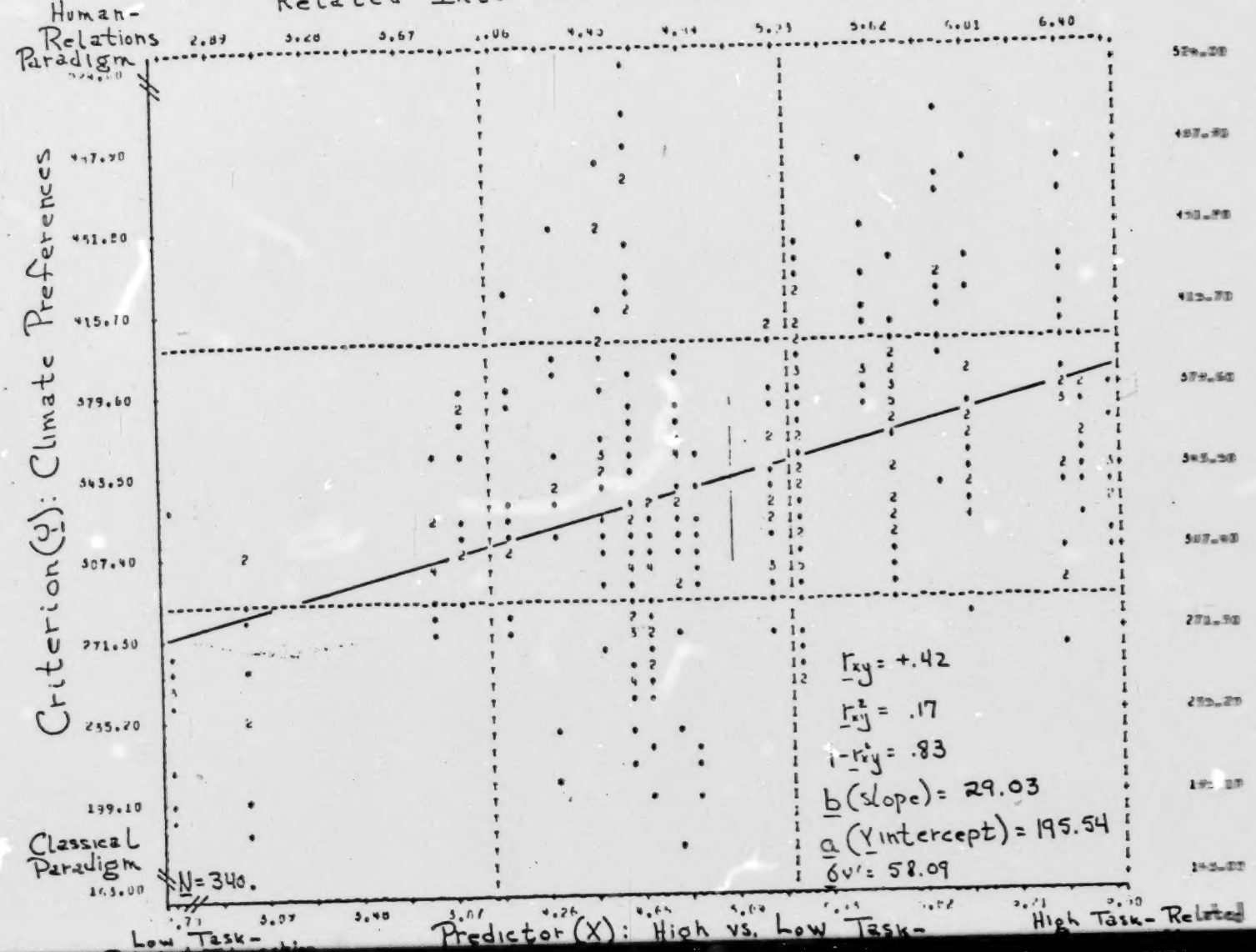

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Figure E
Scattergram and Regression Line Between
Potential Task Routinization and Climate
Preference

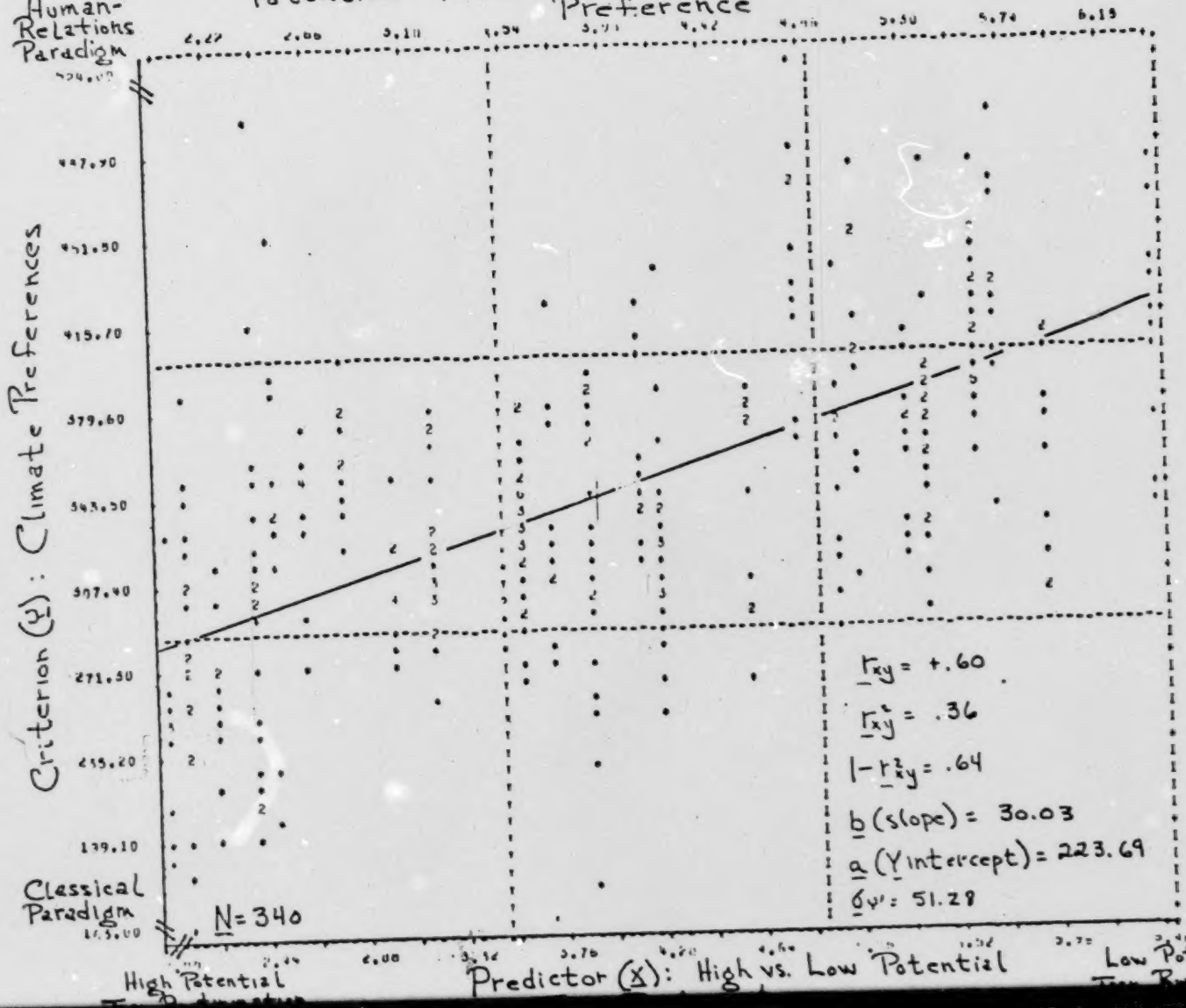

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Figure F
Scattergram and Regression Line Between Problem Structure and Climate Preference

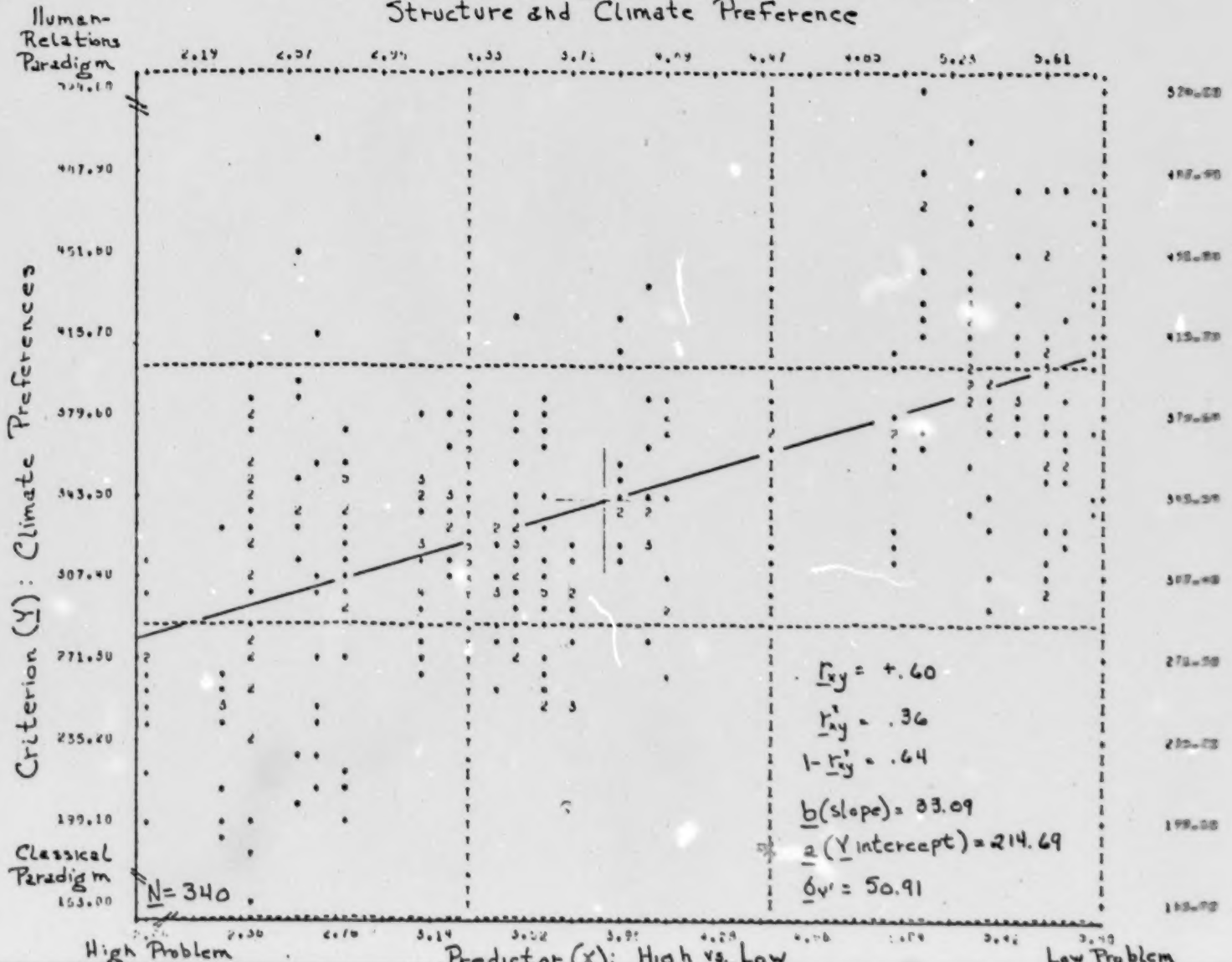

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Figure G
Scattergram and Regression Line Between Private Task-Feedback and Climate Preference

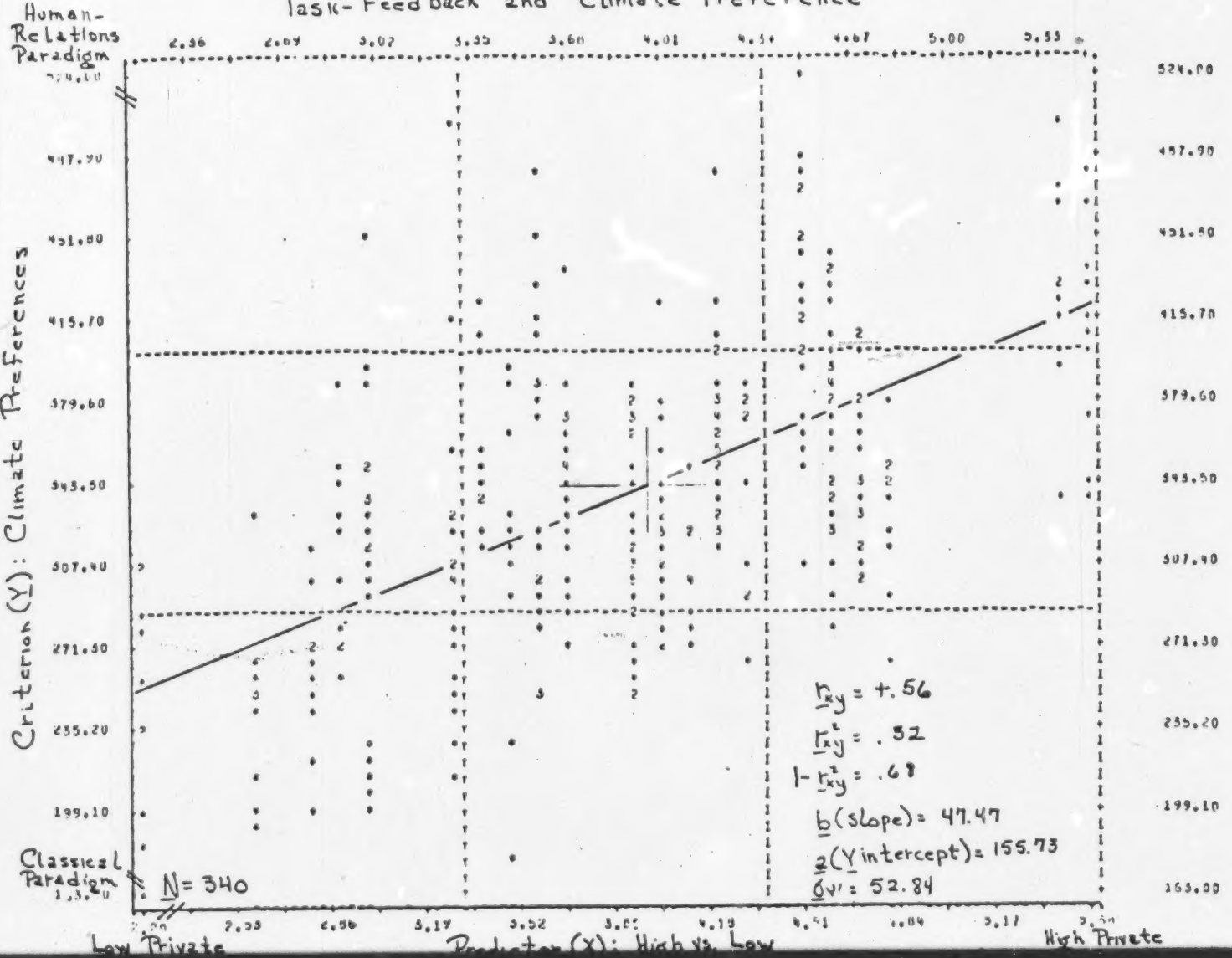

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Figure H

Scattergram and Regression Line Between Unit Size and Climate Preference

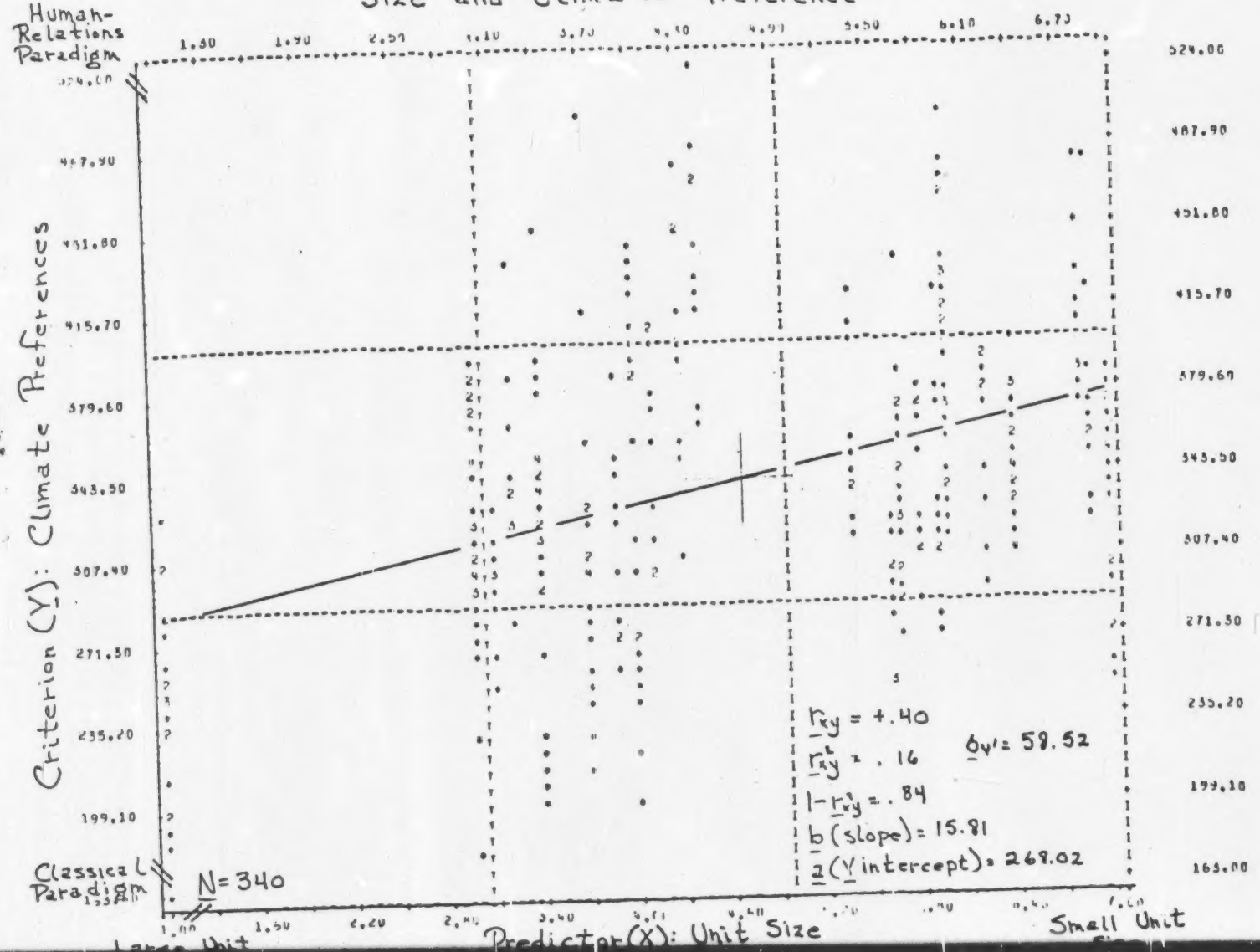

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Figure I

Scattergram and Regression Line Between Member Authoritarianism and Climate Preference

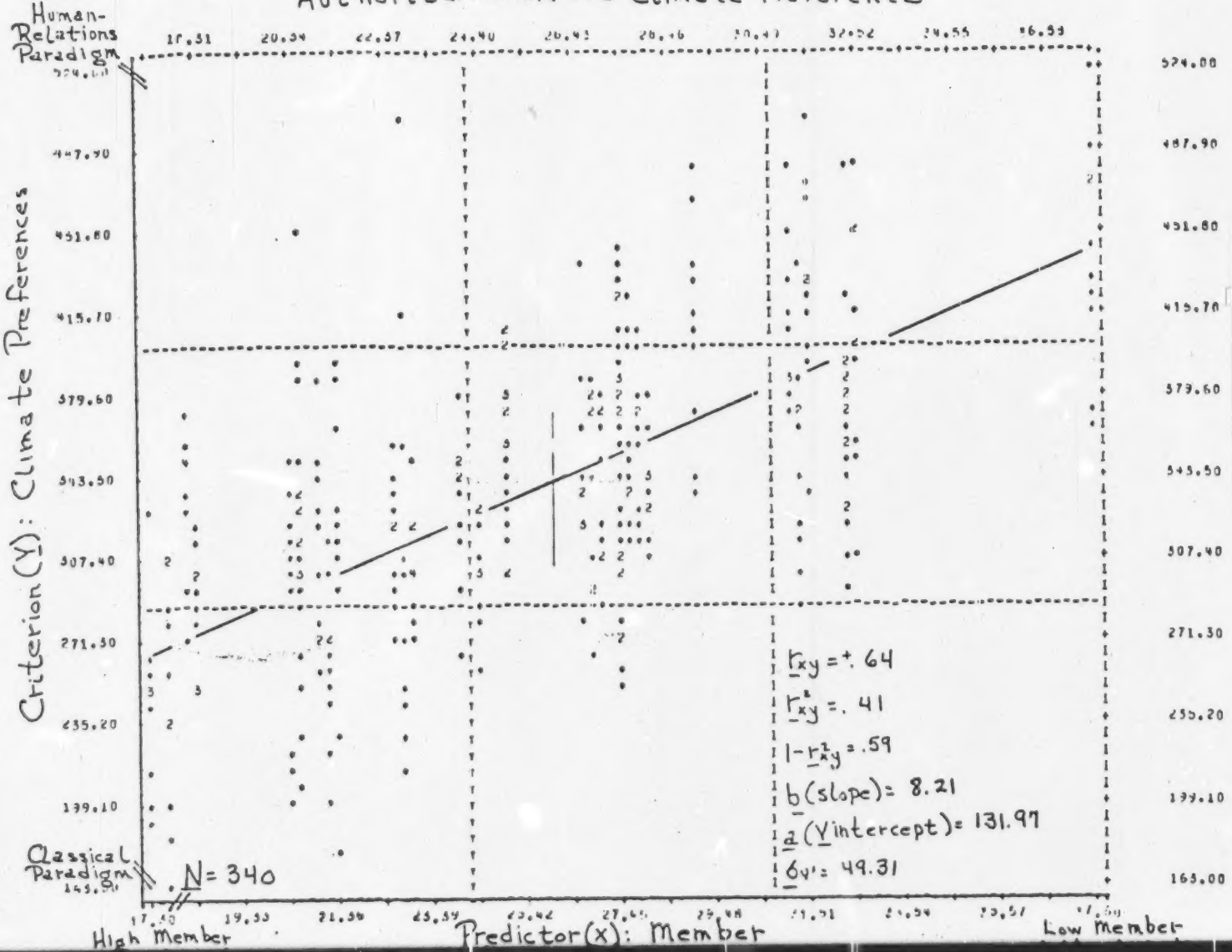

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Figure J

Scattergram and Regression Line Between External Stress and Climate Preference

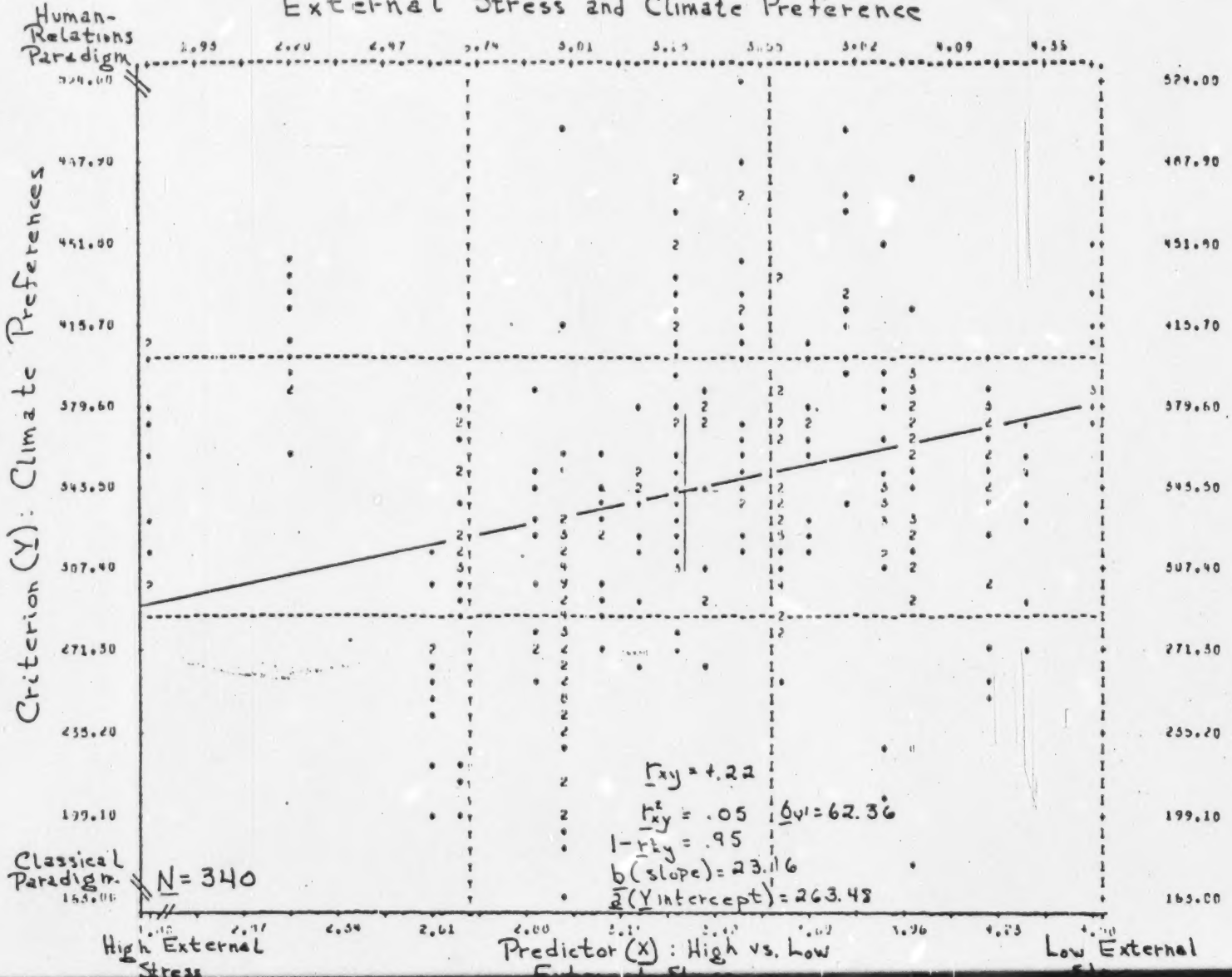

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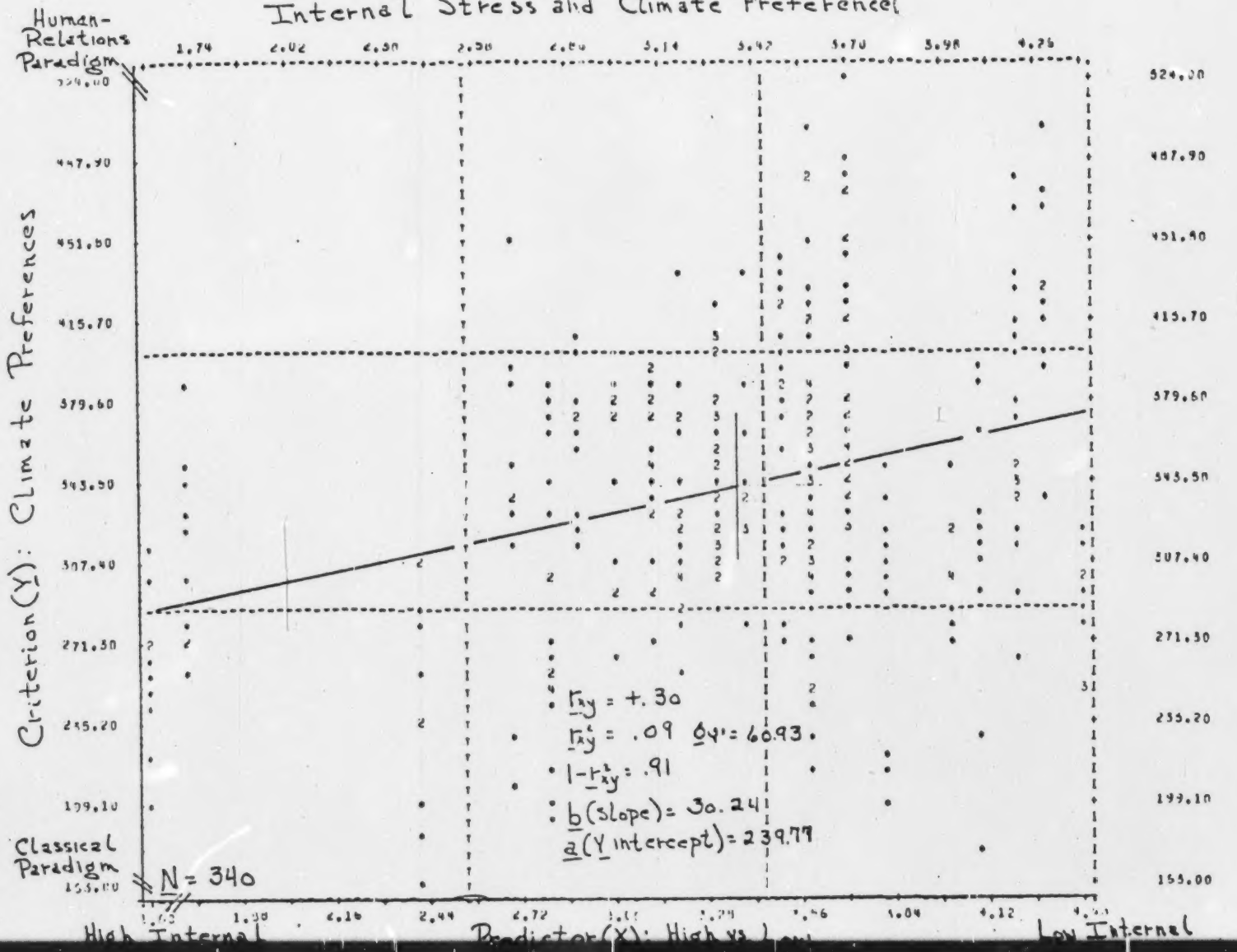
Figure K
Scattergram and Regression Line Between
Internal Stress and Climate Preference



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APPENDIX VII

SCATTERGRAMS AND REGRESSION LINES

BETWEEN ENVIRONMENTAL CONTINGENCIES AND

CLIMATE DESCRIPTIONS

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Figure A

Scattergram and Regression Line Between Goal Emphasis and Climate Description

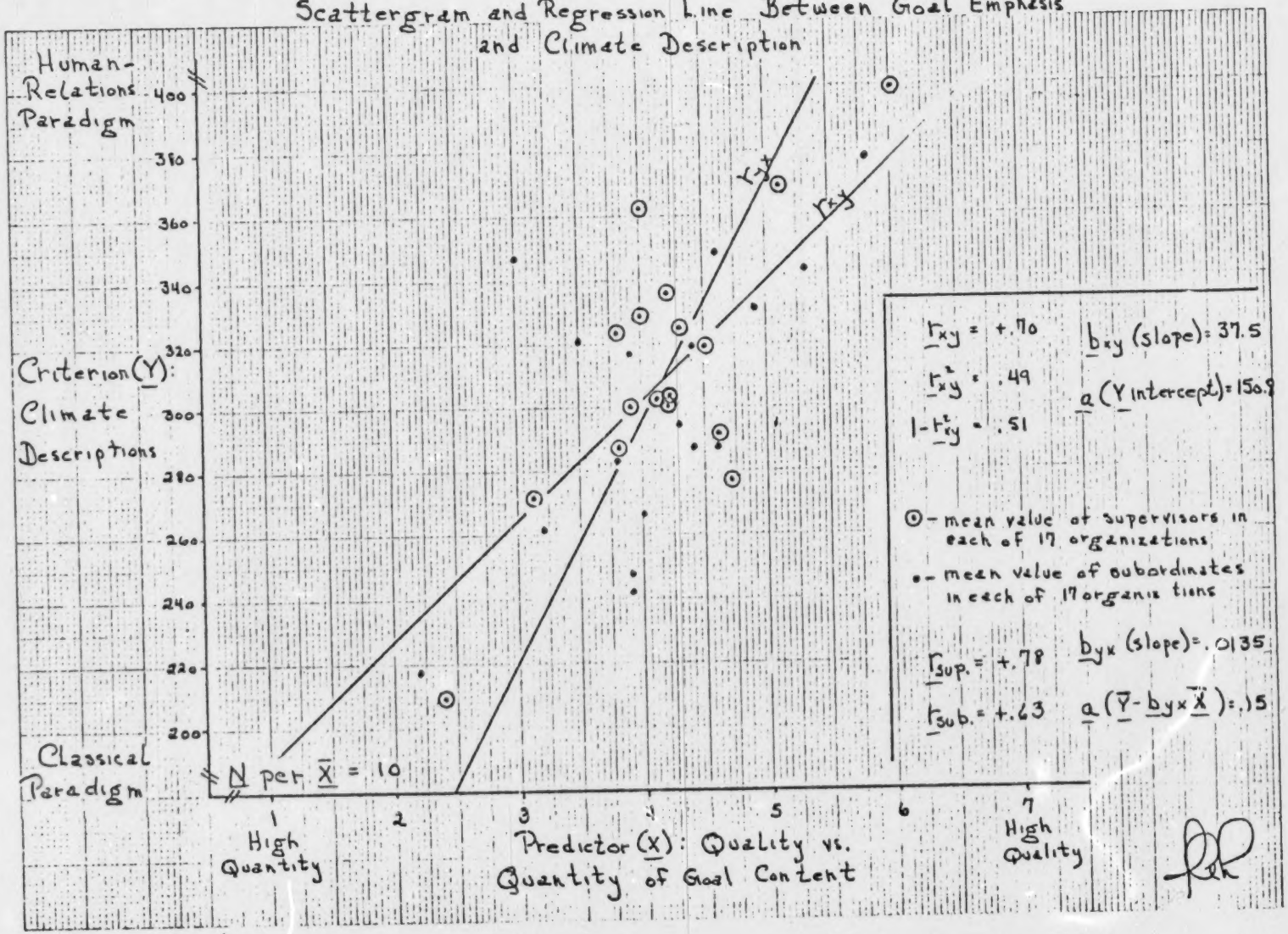

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Figure B

Scattergram and Regression Line Between Task-Necessitated Coordination and Climate Description

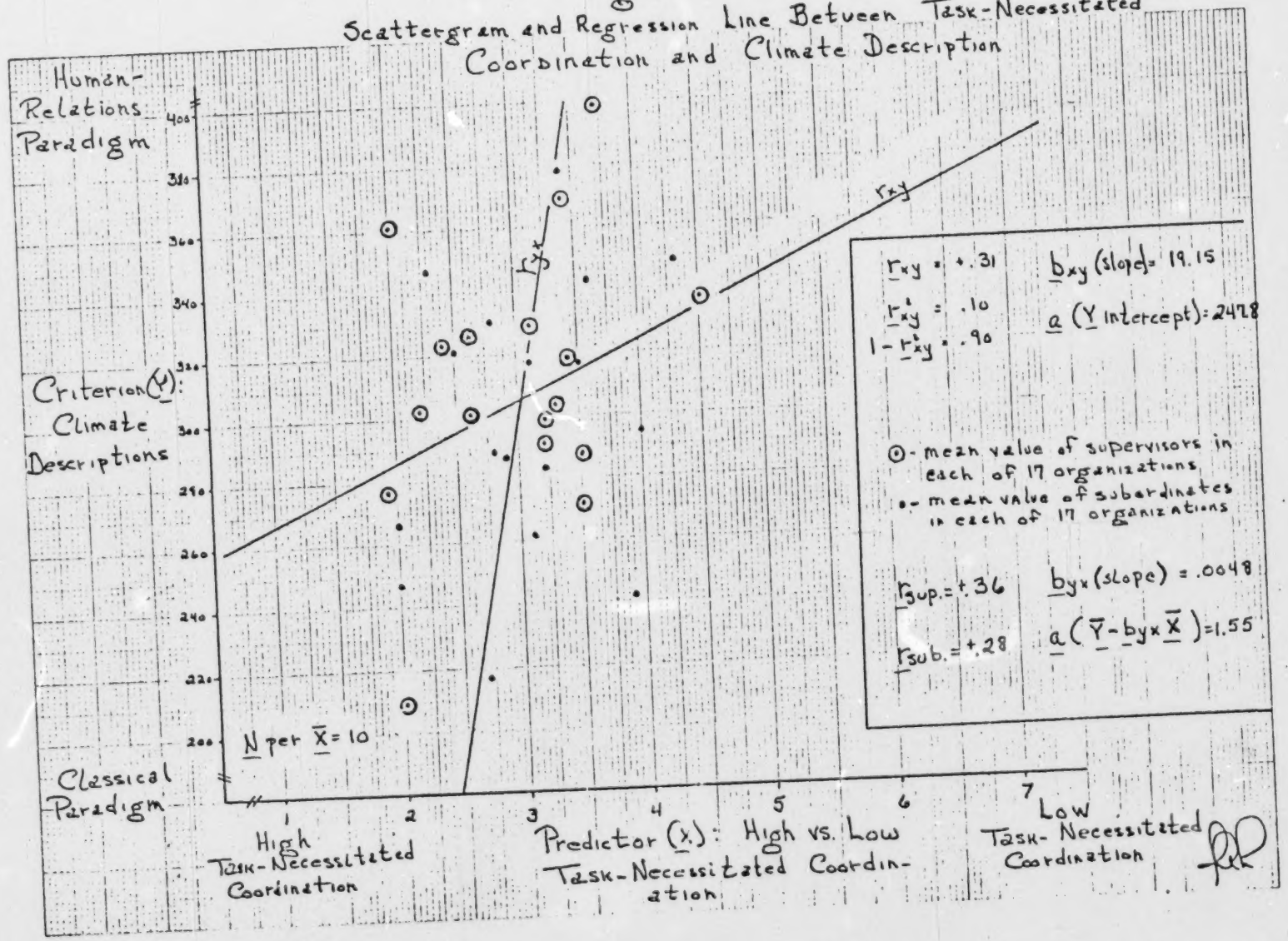

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Figure C

Scattergram and Regression Line Between Task Interdependence and Climate Description

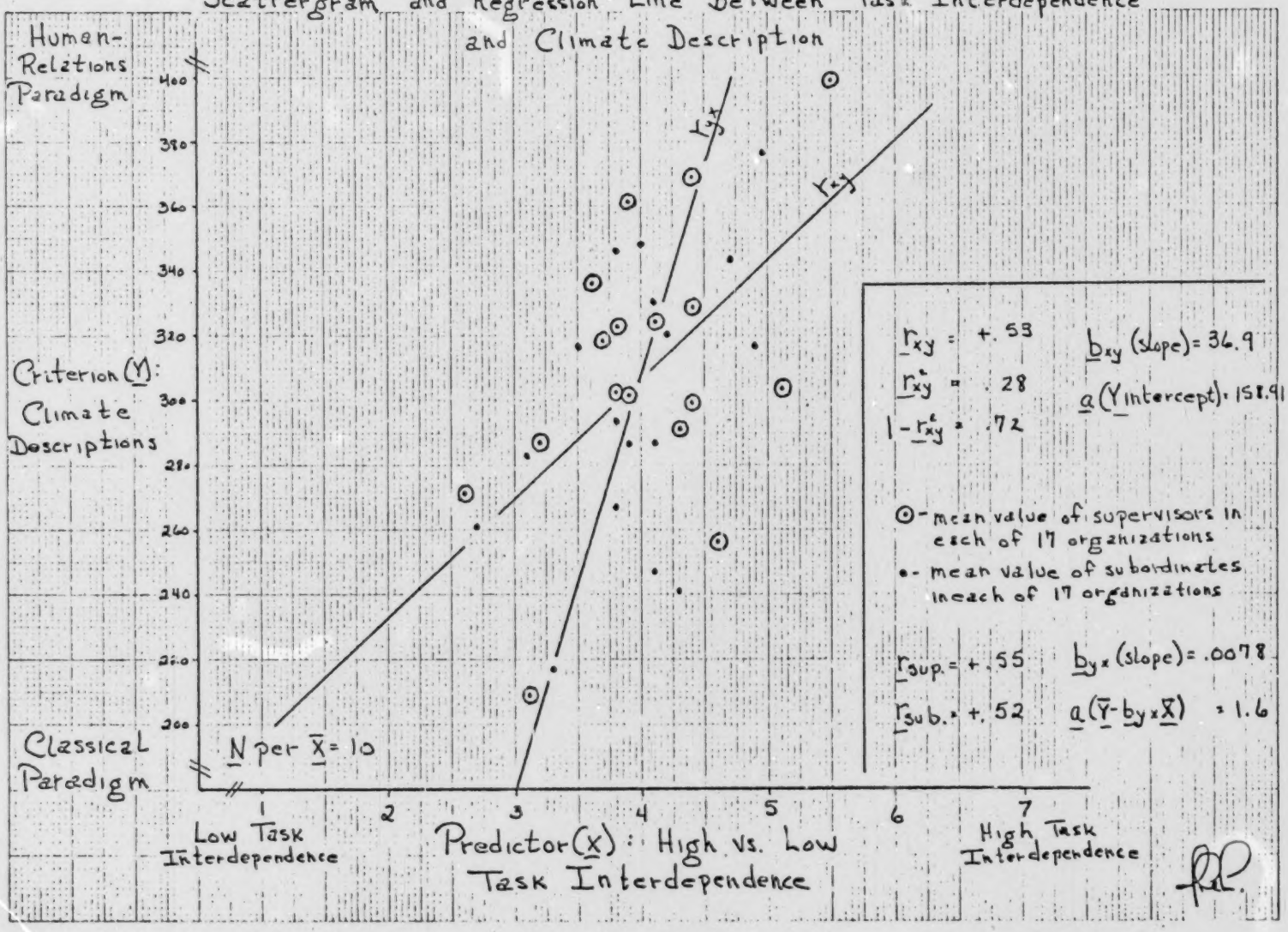

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Figure D

Scattergram and Regression Line Between Task-Related Interaction and Climate Description

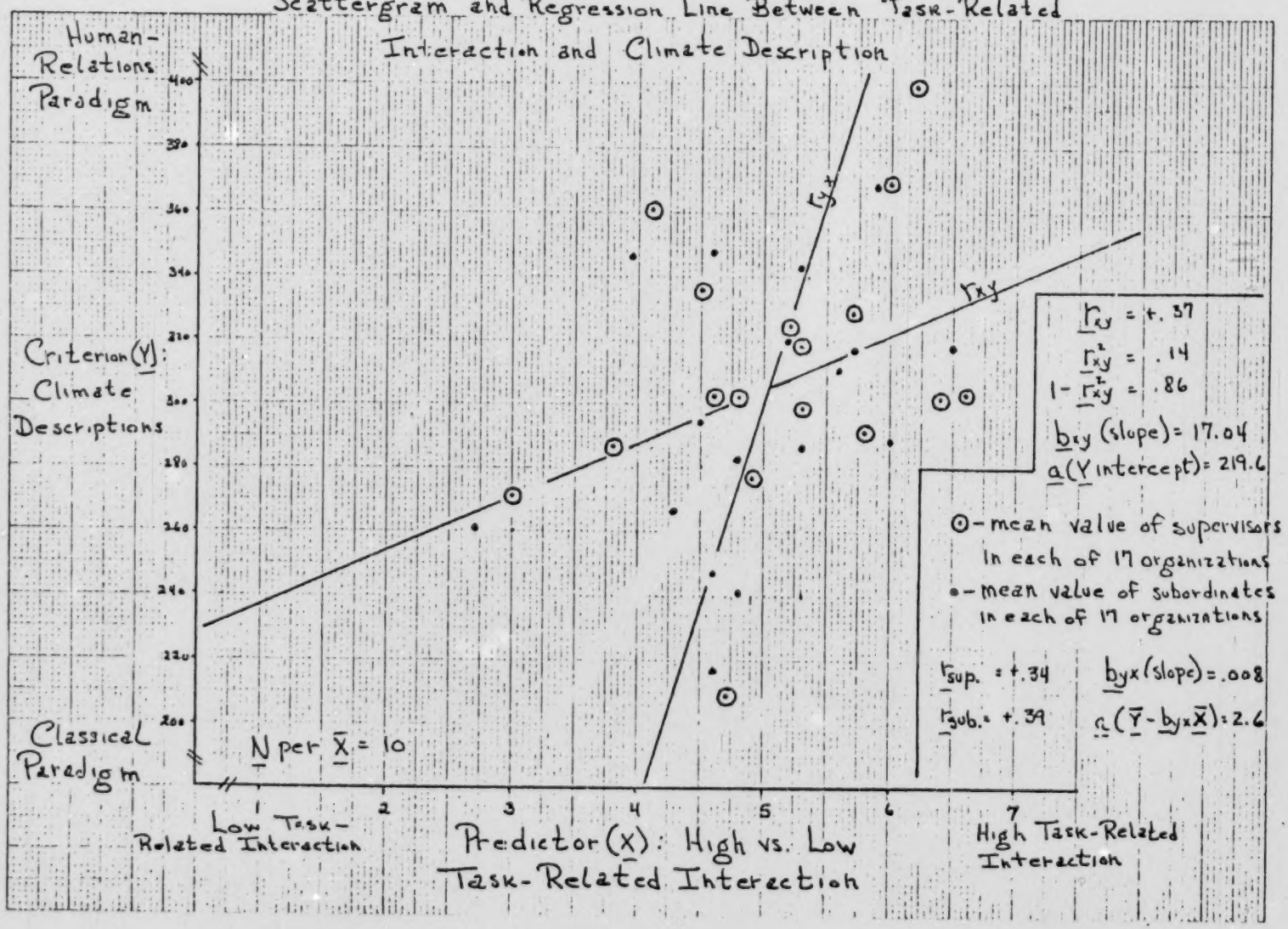

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Figure E

Scattergram and Regression Line Between Potential Task Routinization and Climate Description

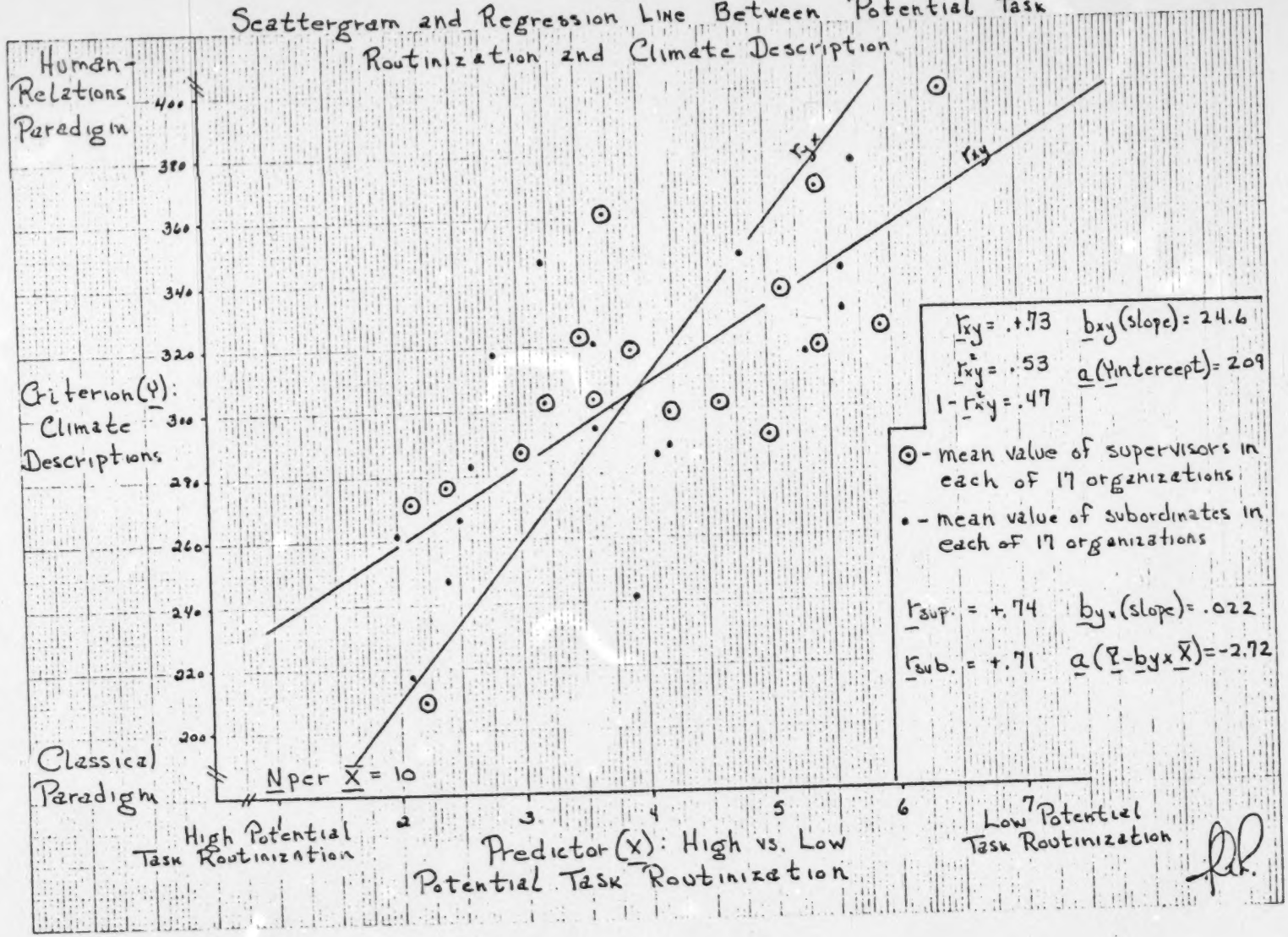

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Figure F

Scattergram and Regression Line Between Problem Structure and Climate Description

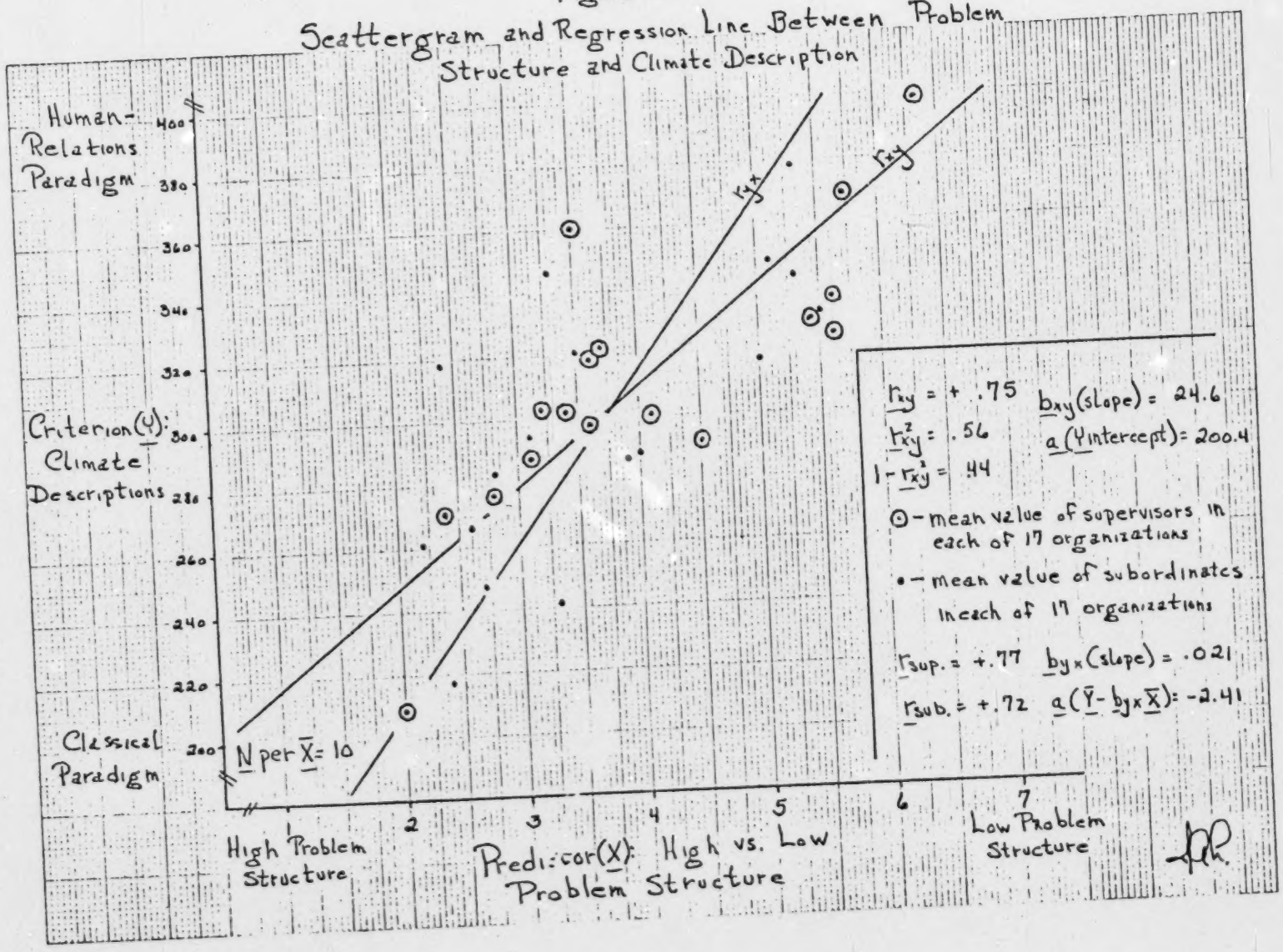

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Figure G

Scattergram and Regression Line Between Private Task Feedback and Climate Description

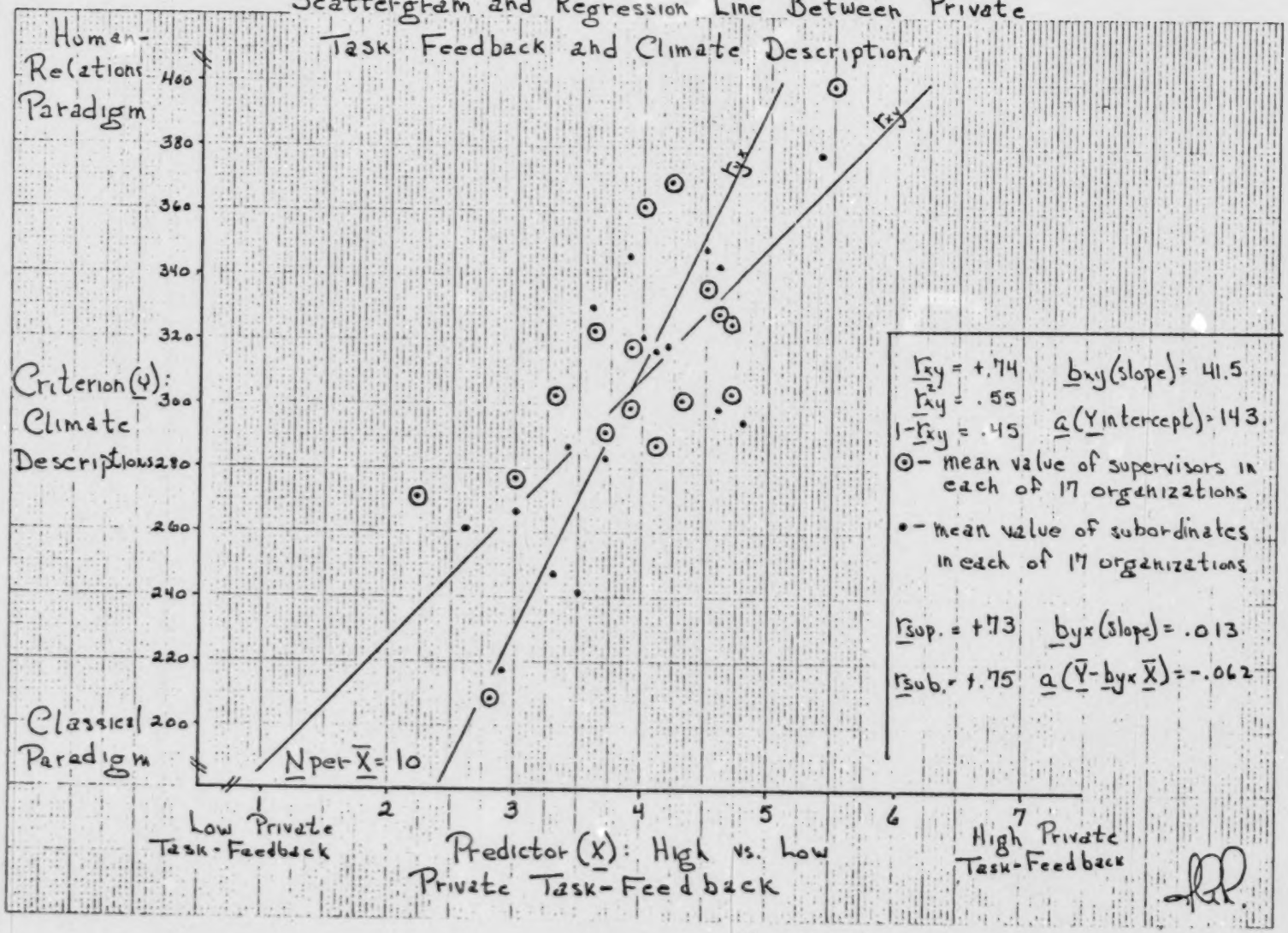

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Figure H

Scattergram and Regression Line Between Unit Size and Climate Description

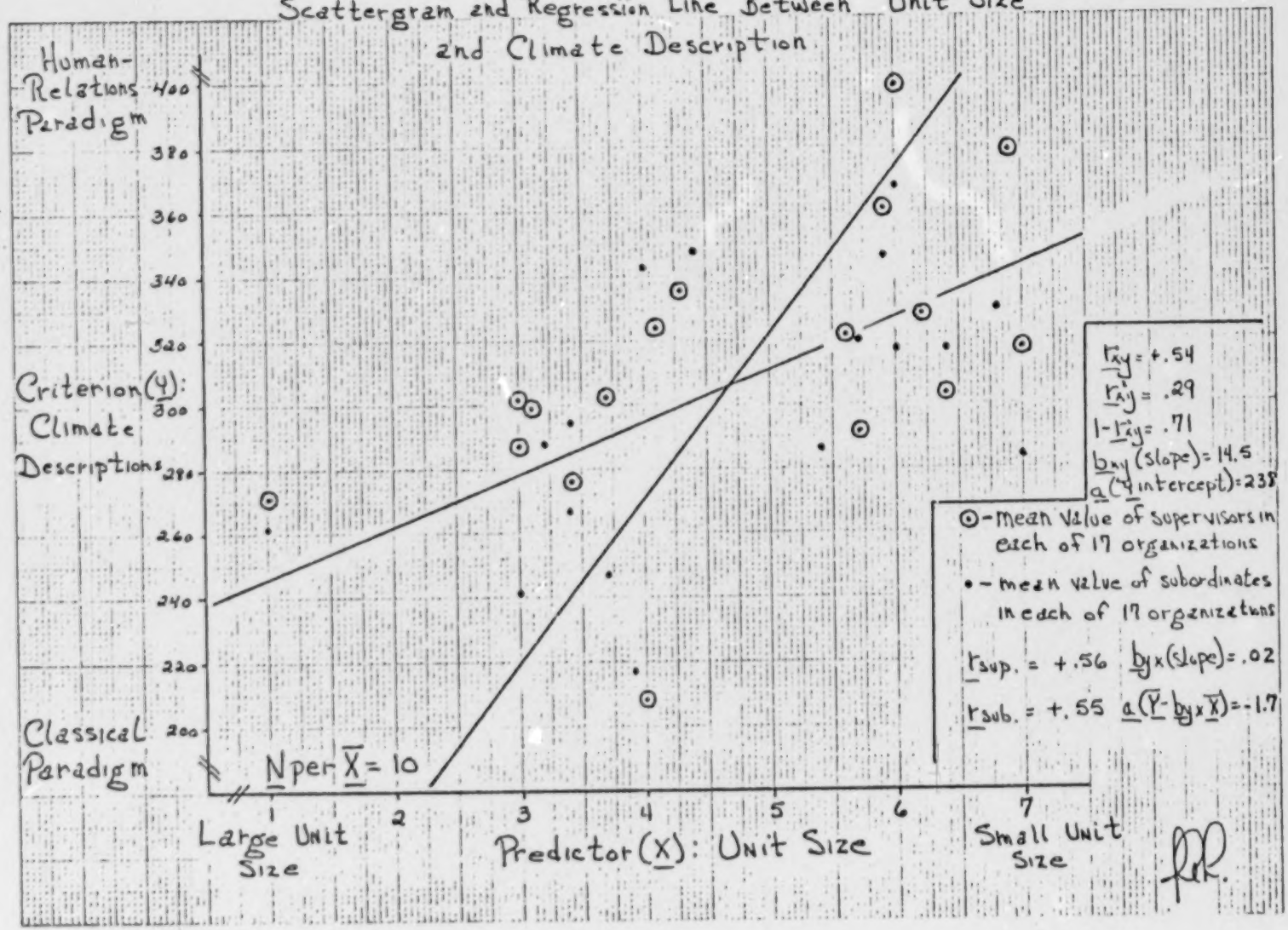

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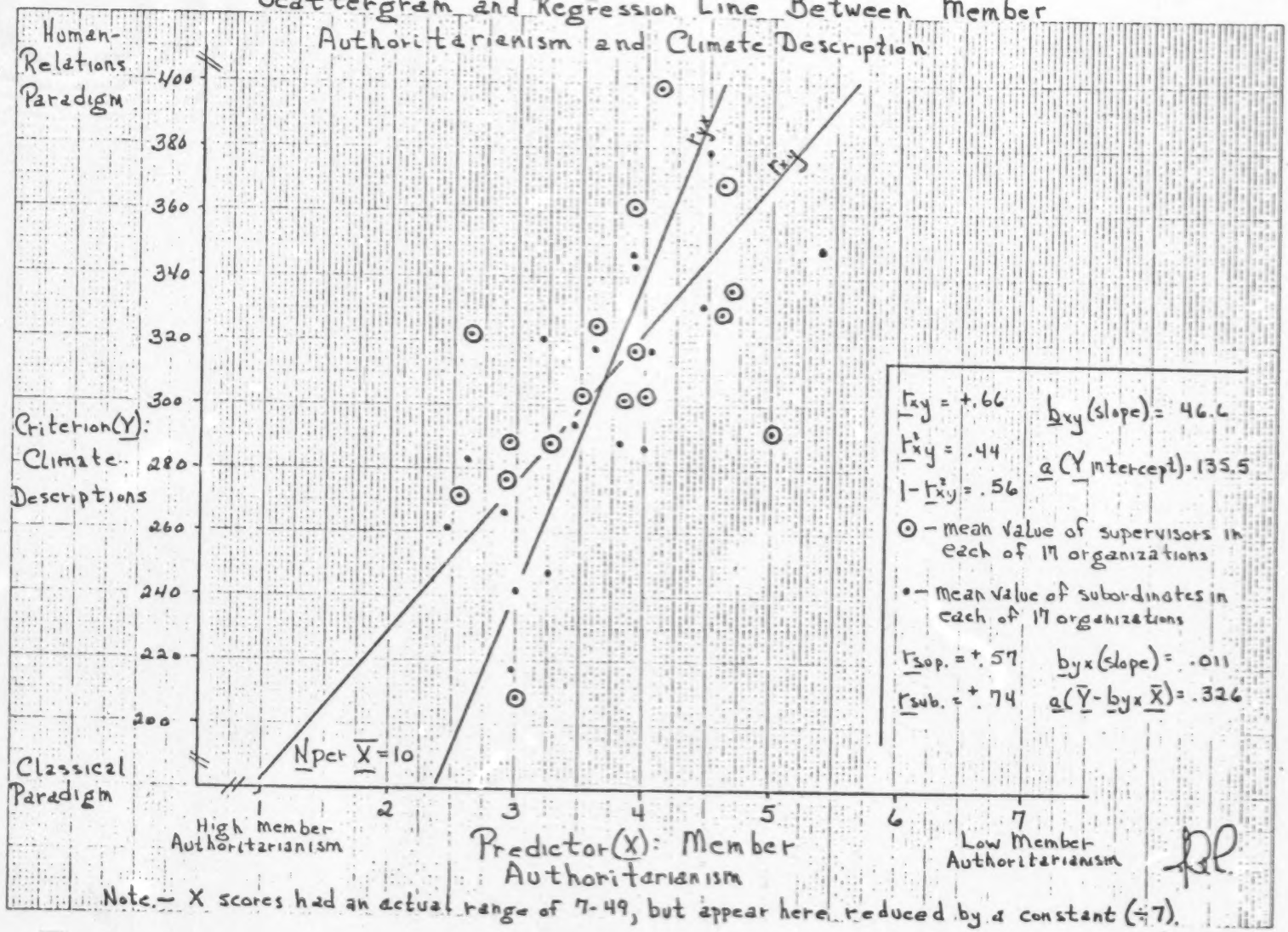
Figure I

Scattergram and Regression Line Between Member Authoritarianism and Climate Description



Note.— X scores had an actual range of 7-49, but appear here reduced by a constant (÷7).

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Figure J

Scattergram and Regression Line Between External Stress and Climate Description

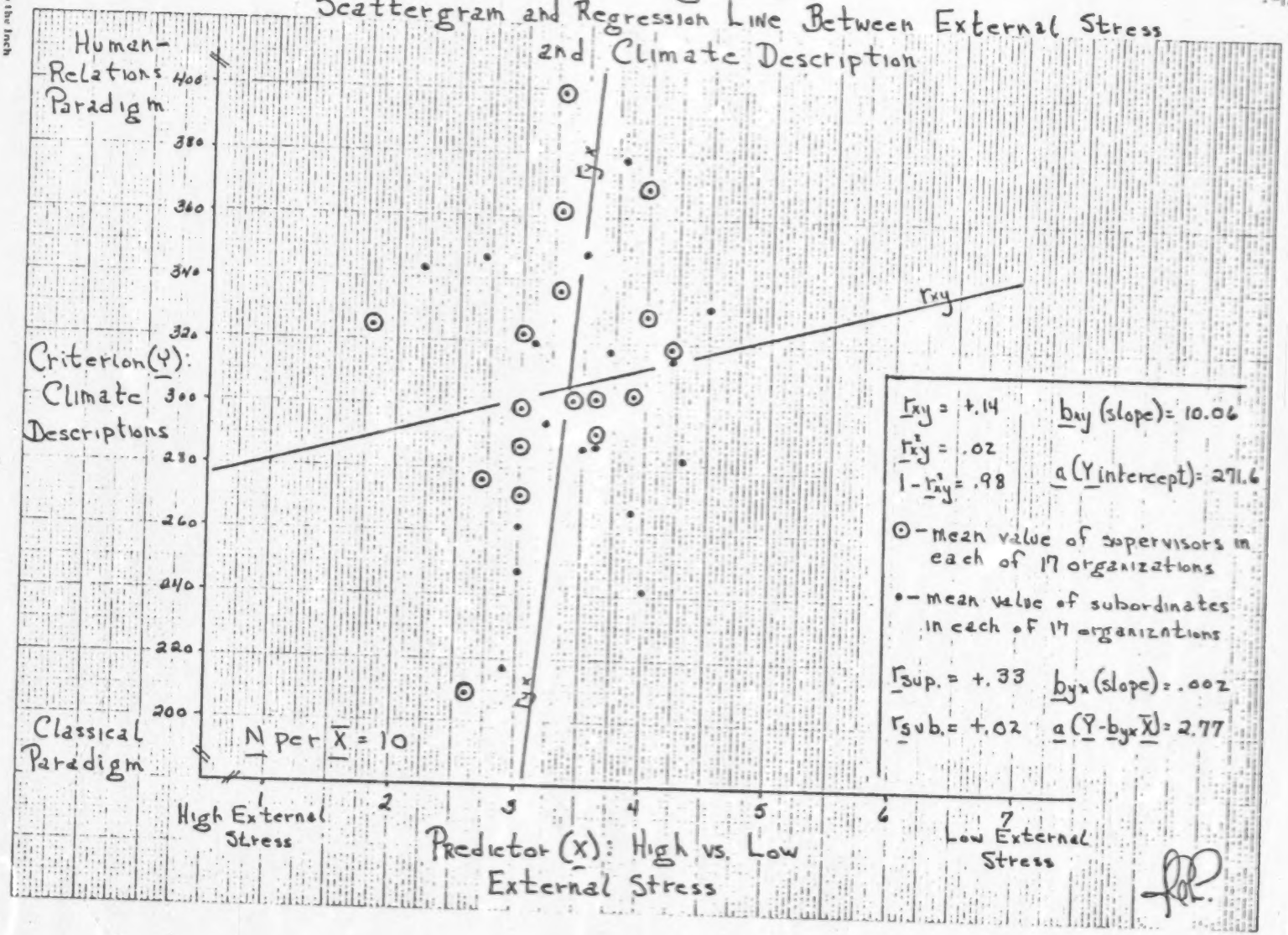

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Figure K

Scattergram and Regression Line Between Internal Stress and Climate Description

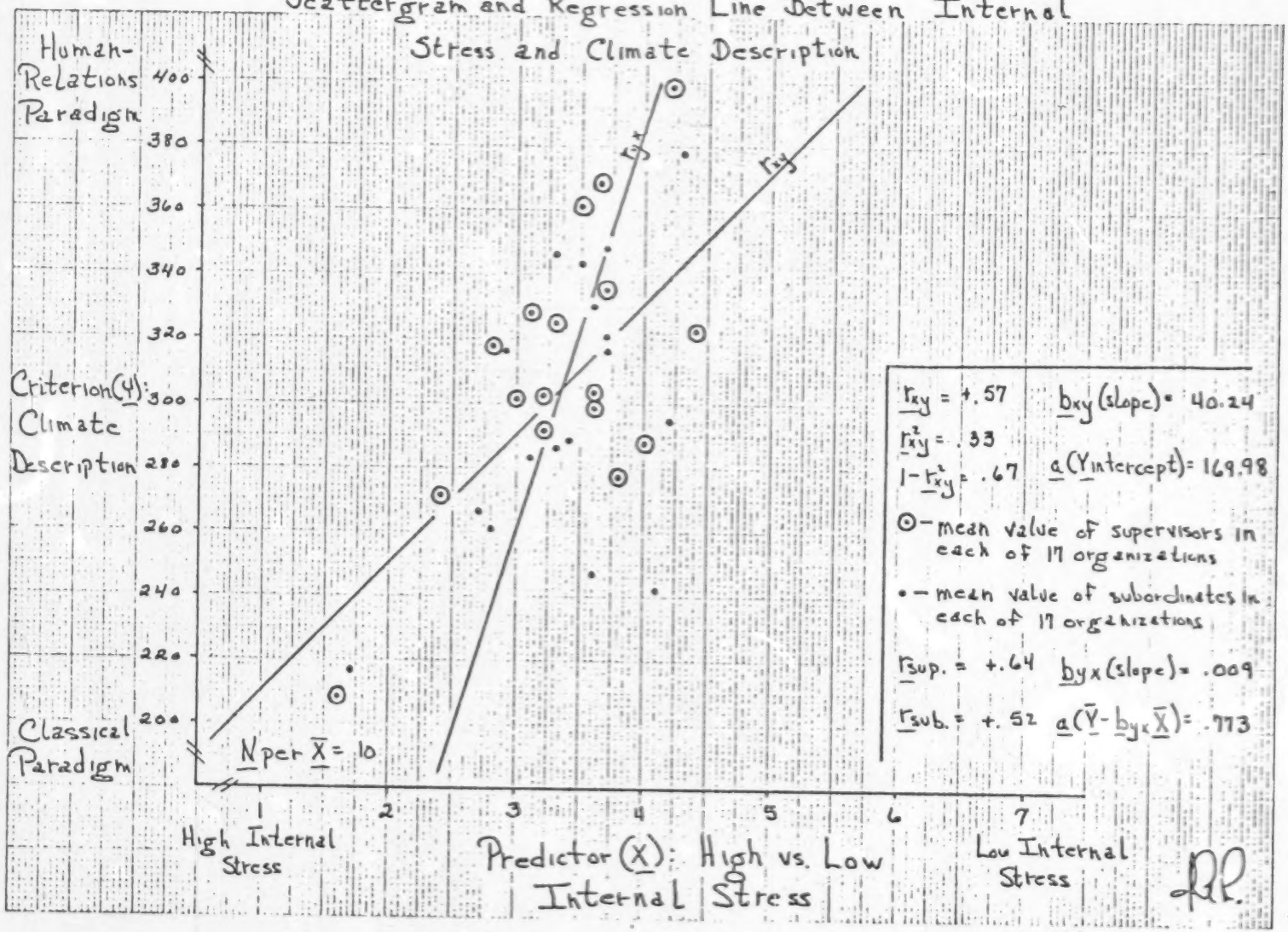

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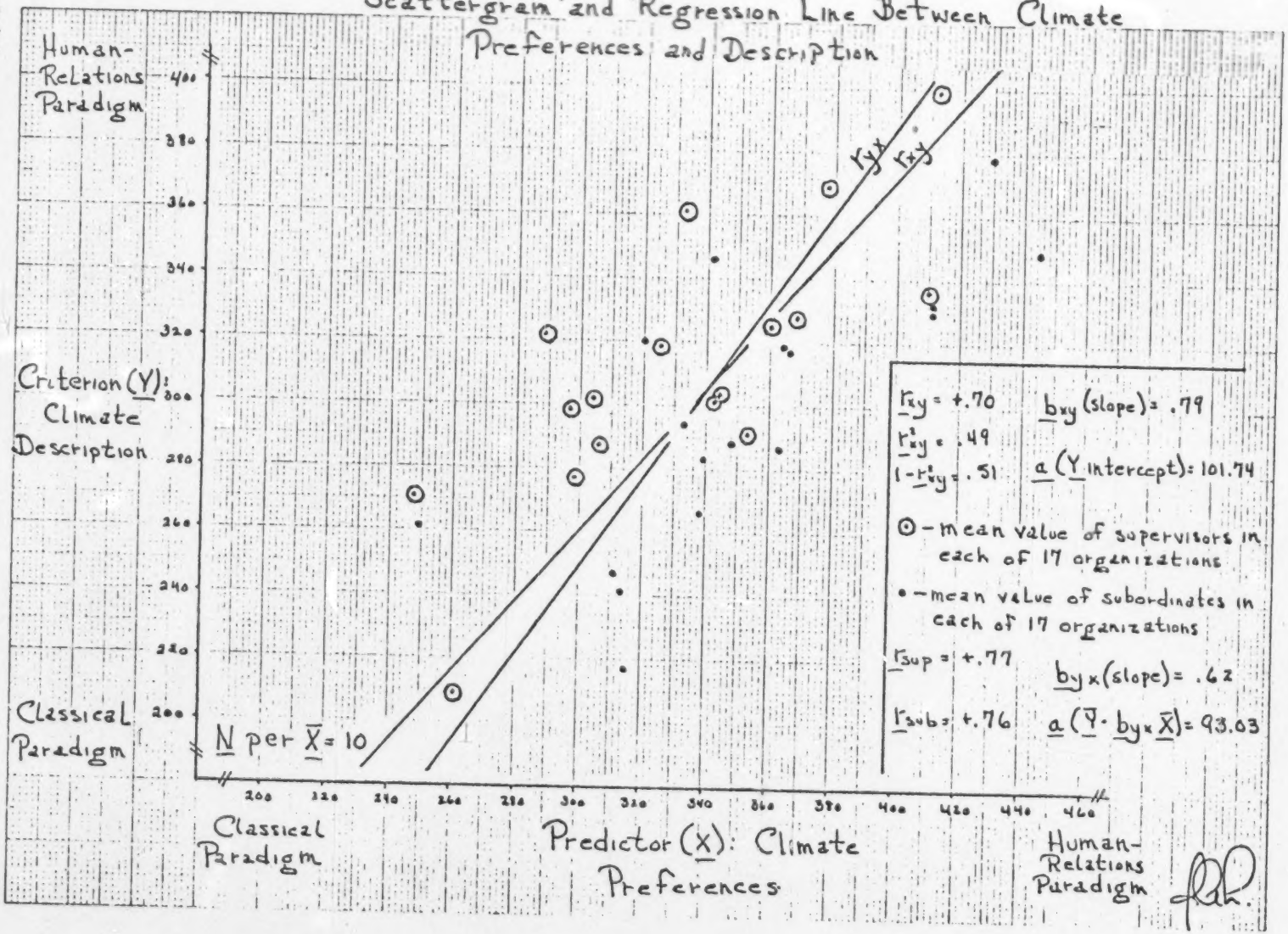
Figure L

Scattergram and Regression Line Between Climate Preferences and Description



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REFERENCES

REFERENCES

Adams, J. C. The relative effects of various atmospheres on spontaneous flexibility, a factor of divergent thinking. Journal of Creative Behavior, 1968, 2, 187-193.

Adorno, T. W., Frenkel-Brunswik, E., Levinson, D. J., & Sanford, R. N. The authoritarian personality. New York: Harper & Row, 1950.

Alexander, F. On the psychodynamics of regressive phenomena in panic states. Psychoanalysis and the Social Sciences, 1955, 4, 104-110.

Andrews, J. D. W. The achievement motive and advancement in two types of organizations. Journal of Personality and Social Psychology, 1967, 6, 163-169.

Angyal, A. Foundations for the science of personality. New York: Commonwealth Fund, 1941.

Argyris, C. Some problems in conceptualizing organizational climates: A case study of a bank administration. Administrative Science Quarterly, 1958, 2, 501-520.

Argyris, C. Integrating the individual and the organization. New York: Wiley, 1964.

Astin, A. W. An empirical characterization of higher educational institutions. Journal of Educational Psychology, 1962, 53, 224-235.

Astin, A. W. Further validation of the environmental assessment technique. Journal of Educational Psychology, 1963, 54, 217-226.

Astin, A. W., & Holland, J. L. The environmental assessment technique: A way to measure college environments. Journal of Educational Psychology, 1961, 52, 308-316.

Barnes, L. B. Organizational systems and engineering groups. Boston: Harvard Business School, 1960.

Bass, B. Leadership, psychology and organizational behavior. New York: Harper & Row, 1960.

Baumgartel, H., & Sobol, R. Background and organizational factors in absenteeism. Personnel Psychology, 1959, 12, 431-443.

Becker, H. S., Greer, B., Hughes, E. C., & Strauss, A. L. Boys in white: Student culture in medical school. Chicago, Illinois: University of Chicago, 1961.

Bennis, W. Leadership theory and administrative behavior. Administrative Science Quarterly, 1959, 4, 259-301.

Berrien, F. K. General and social systems. New Brunswick, New Jersey: Rutgers University, 1968.

Blake, R. R., & Mouton, J. S. The managerial grid. Houston, Texas: Gulf, 1964.

Blau, P. M. Co-operation and competition in a bureaucracy. American Journal of Sociology, 1954, 59, 530-535.

Blau, P. M., & Scott, W. R. Formal organizations: A comparative approach. San Francisco, California: Chandler, 1962.

Boneau, C. A. The effects of violations of assumptions underlying the t test. Psychological Bulletin, 1960, 57, 49-64.

Brayfield, A. H., & Crockett, W. H. Employee attitudes and performance. Psychological Bulletin, 1955, 52, 396-428.

Broad, C . D. Mind and its place in nature. London: Kegan Paul, 1925.

Brunswik, E. The conceptual focus of some psychological systems (1939). In P. L. Harriman (Ed.), Twentieth century psychology. New York: Philosophical Library, 1946.

Burns, T., & Stalker, G. M. The management of innovation. London: Tavistock, 1961.

Burt, C. Tests of significance in factor studies. British Journal of Psychology, 1952, 5, 109-133.

Campbell, D. T. Mutual methodological relevance. In F. L. K. Hsu (Ed.), Psychological anthropology. Homewood, Illinois: Dorsey, 1961.

Campbell, D. T., & Fiske, D. W. Convergent and discriminant validation by the multitrait-multimethod matrix. Psychological Bulletin, 1959, 56, 81-105.

Campbell, J. P., Dunnette, M. D., Lawler, E. E., & Weick, K. E. Managerial behavior, performance and effectiveness. New York: McGraw-Hill, 1970.

Campion, J. E. Effects of managerial style on subordinates' attitudes and performance in a simulated organization setting. Unpublished doctoral dissertation, University of Minnesota, 1968.

Caplow, T. The criteria of organizational success. Social Forces, 1953, 32, 1-9.

Chein, I. The environment as a determinant of behavior. Journal of Social Psychology, 1954, 39, 115-127.

Child, D. The essentials of factor analysis. New York: Holt, Rinehart & Winston, 1970.

Coch, L., & French, J. R. P. Overcoming resistence to change. Human Relations, 1948, 1, 512-532.

Cochran, W. G. Sampling techniques. New York: Wiley, 1963.

Cohen, J. Some statistical issues in psychological research. In B. B. Wolman (Ed.), Handbook of clinical psychology. New York: McGraw-Hill, 1965.

Cohen, J. Multiple regression as a general data analytic system. Psychological Bulletin, 1968, 70, 426-443.

Cohen, J. Statistical power analysis for the behavioral sciences. New York: Academic, 1969.

Cooley, W. W., & Lohnes, P. R. Multivariate data analysis. New York: Wiley, 1971.

Cronbach, L. J., & Meehl, P. E. Construct validity in psychological tests. Psychological Bulletin, 1955, 52, 281-302.

Darley, J. G. Promise and performance: A study of ability and achievement in higher education. Berkeley, California: University of California, 1962.

Dawe, H. C. The influence of size of kindergarten group upon performance. Child Development, 1934, 5, 295-303.

Deutsch, M. The effects of cooperation and competition upon group process. Human Relations, 1949, 2, 129-152.

Devereux, G. Charismatic leadership and crisis. Psychoanalysis and the Social Sciences, 1955, 4, 145-157.

Dill, W. R., Hilton, T. L., & Reitman, W. R. The new managers. Englewood Cliffs, New Jersey: Prentice-Hall, 1962.

Dixon, W. J. (Ed.) BMD: Biomedical computer programs. Berkeley, California: University of California, 1970.

Dunnette, M. D. A modified model for test validation and selection research. Journal of Applied Psychology, 1963, 47, 317-323.

Dunnette, M. D. Personnel selection and placement. London: Tavistock, 1966.

Eisenstadt, S. N. Bureaucracy and bureaucratization. Current Sociology, 1958, 7, 99-124.

Etzioni, A. Industrial sociology: The study of economic organizations. Social Research, 1958, 25, 303-324.

Etzioni, A. Two approaches to organizational effectiveness: A critique and a suggestion. Administrative Science Quarterly, 1960, 5, 257-278.

Etzioni, A. A comparative analysis of complex organizations. New York: Free Press, 1961.

Evan, W. M. Indices of the hierarchical structure of industrial organizations. Management Science, 1963, 9, 468-477.

Evan, W. M. A systems model of organizational climate. In R. Tagiuri & G. H. Litwin (Eds.), Organizational climate: Explorations of a concept. Boston: Harvard University, 1968.

Farris, G. F. A predictive study of turnover. Personnel Psychology, 1971, 24, 311-328.

Faunce, W. A. Automation in the automobile industry. American Sociological Review, 1958, 23, 401-407.

Fayol, H. General and industrial management. Trans. by C. Stons. London: Pitman & Sons, 1949.

Fiedler, F. E. The influence of leader-keymen relations on combat crew effectiveness. Journal of Abnormal and Social Psychology, 1955, 51, 227-235.

Fiedler, F. E. Leader attitudes and group effectiveness. Urbana, Illinois: University of Illinois, 1958.

Fiedler, F. E. Leader attitudes, group climate, and group creativity. Journal of Abnormal and Social Psychology, 1962, 65, 308-318.

Fiedler, F. E. The effect of leadership and cultural heterogeneity on group performance: A test of the contingency model. Journal of Experimental and Social Psychology, 1966, 2, 237-264.

Fiedler, F. E. Personality and situational determinants of leadership effectiveness. In D. Cartwright & A. Zander (Eds.), Group dynamics: Research and theory. New York: Harper & Row, 1968, Chapter 28.

Fiedler, F. E., London, P., & Nemo, R. S. Hypnotically induced leader attitudes and group creativity. Unpublished manuscript, University of Illinois, 1961.

Fiedler, F. E., Meuwese, W., & Oonk, S. Performance on laboratory tasks requiring group creativity. Acta Psychologica, 1961, 18, 100-119.

Fleishman, E. A., Harris, E. F., & Burtt, H. E. Leadership and supervision in industry. (Research Monograph No. 33) Columbus, Ohio: Ohio State University, Bureau of Educational Research, 1955.

Forehand, G. A. On the interaction of persons and organizations. In R. Tagiuri & G. H. Litwin (Eds.), Organizational climate: Explorations of a concept. Boston: Harvard University, 1968.

Forehand, G. A., & Gilmer, B. Environmental variation in studies of organizational behavior. Psychological Bulletin, 1964, 62, 361-382.

Frederiksen, N. Some effects of organizational climates on administrative performance. (Research Memorandum RM-66-21) Princeton, New Jersey: Educational Testing Service, 1966.

Frederiksen, N. Administrative performance in relation to organizational climate. Symposium presented at a meeting of the American Psychological Association, San Francisco, September 1968.

Friedlander, F., & Margulies, N. Multiple impacts of organizational climate and individual value systems upon job satisfaction. Personnel Psychology, 1969, 22, 171-183.

Funkenstein, D. H. Failure to graduate from medical school. Journal of Medical Education, 1962, 37, 585-603.

Gee, H., & Glazer, R. J. The ecology of the medical student. Evanston, Illinois: Association of American Medical Colleges, 1958.

Gellerman, S. W. People, problems, and profits. New York: McGraw-Hill, 1960.

Gilmer, B. Industrial psychology (1st ed.). New York: McGraw-Hill, 1961.

Gilmer, B. Industrial psychology (2nd ed.). New York: McGraw-Hill, 1966.

Godfrey, E. P., Fiedler, F. E., & Hall, D. M. Boards, management, and company success. Danville, Illinois: Interstate, 1959.

Gold, D. A criticism of an empirical assessment of the concept of bureaucracy on conceptual independence and empirical independence. American Journal of Sociology, 1964, 70, 223-225.

Goldsen, R. K., Rosenberg, M., Williams, R. M., & Suchman, E. A. What college students think. Princeton, New Jersey: VanNostrand, 1960.

Greiner, L. E., Leitch, D. P., & Barnes, L. B. The simple complexity of organizational climate in a government agency. In R. Tagiuri & G. H. Litwin (Eds.), Organizational climate: Explorations of a concept. Boston: Harvard University, 1968.

Guetzkow, H. The creative person in organizations. In G. Steiner (Ed.), The creative organization. Chicago, Illinois: University of Chicago, 1965.

Guetzkow, H. & Bowes, A. E. The development of organizations in the laboratory. Management Science, 1957, 3, 380-402.

Guilford, J. P. Psychometric methods. New York: McGraw-Hill, 1954.

Guion, R. M. Personnel testing. New York: McGraw-Hill, 1965.

Hackman, J. R., & Lawler, E. E. Employee reactions to job characteristics. Journal of Applied Psychology, 1971, 55, 259-286.

Hall, D. T., & Schneider, B. Organizational climates and careers: The work lives of parish priests. New York: Seminar, 1972.

Hall, R. H. The concept of bureaucracy: An empirical assessment. American Journal of Sociology, 1963, 69, 32-40.

Halpin, A. W. Theory and research in administration. New York: Macmillan, 1966, Chapter 4.

Halpin, A. W., & Croft, D. B. The organizational climate of schools. Chicago, Illinois: University of Chicago, 1963.

Hamblin, R. L. Leadership and crisis. Sociometry, 1958, 21, 322-335.

Harman, H. H. Modern factor analysis. Chicago, Illinois: University of Chicago, 1967.

Hays, W. L. Statistics. New York: Holt, Rinehart, & Winston, 1963.

Haythorn, W. The effects of varying combinations of authoritarian and equalitarian leaders and followers. In E. E. Maccoby et al. (Eds.), Readings in social psychology. New York: Holt-Rinehart, 1958.

Heider, F. Environmental determinants in psychological theories. Psychological Review, 1939, 46, 383-410.

Hemphill, J. K. Relations between the size of the group and the behavior of "superior" leaders. Journal of Social Psychology, 1950, 32, 11-22.

Heslin, J. A. A field test of the Likert theory of management in an ADP environment. Unpublished doctoral dissertation, American University, 1966.

Hoffman, L. R., Harburg, E., & Maier, N. R. F. Differences and disagreement in creative group problem-solving. Journal of Abnormal and Social Psychology, 1962, 64, 206-214.

Hunt, J. G. Fiedler's leadership contingency model: An empirical test in three organizations. Organizational Behavior and Human Performance, 1967, 2, 290-308.

Hutchins, E. B., & Fiedler, F. E. Task-oriented and quasi-therapeutic role functions of the leader in small military groups. Sociometry, 1960, 23, 293-406.

Indik, B. P. Organization size and member participation. Unpublished doctoral dissertation, University of Michigan, 1961.

Kahn, R. L., & Mann, F. C. Developing research relations. Journal of Social Issues, 1952, 8, 4-10.

Kahn, R. L., Mann, F. C., & Seashore, S. Introduction. Journal of Social Issues, 1956, 12, 2-4.

Kast, F. E., & Rosenzweig, J. E. Contingency views of organization and management. Chicago, Illinois: Science Research Associates, 1973.

Katzell, R. A. Contrasting systems of work organization. American Psychologist, 1962, 17, 102-108.

Katzell, R. A., Barrett, R. S., & Parker, T. C. Job satisfaction, job performance, and situational characteristics. Journal of Applied Psychology, 1961, 45, 65-72.

Kerlinger, F. N., & Pedhazur, E. J. Multiple regression in behavioral research. New York: Holt, Rinehart & Winston, 1973.

Koffka, K. Principles of Gestalt psychology. New York: Harcourt, Brace, 1935.

Korman, A. K. Consideration, initiating structure and organizational criteria: A review. Personnel Psychology, 1966, 19, 349-363.

Korman, A. K. Organizational achievement, aggression and creativity: Some suggestions toward an integrated theory. Organizational Behavior and Human Performance, 1971, 6, 593-613.

Korten, D. C. Situational determinants of leadership structure. The Journal of Conflict Resolution, 1962, 6, 222-235.

Lawrence, L. C., & Smith, P. C. Group decision and employee participation. Journal of Applied Psychology, 1955, 39, 334-337.

Lawrence, P. R., & Lorsch, J. W. Organization and environment. Boston: Harvard University, 1967.

Leavitt, H. J. Unhuman organization. Harvard Business Review, 1962, 40, 90-98.

Lewin, K. Forces behind food habits and methods of change. Bulletin of the National Research Council, 1943, 108, 35-65.

Lewin, K. Field theory in social science. New York: Harper & Row, 1951.

Lewin, K., Lippitt, R., & White, R. K. Patterns of aggressive behavior in experimentally created "social climates." Journal of Social Psychology, 1939, 10, 271-299.

Li, C. C. Introduction to experimental statistics. New York: McGraw-Hill, 1964.

Lichtman, C. M., & Hunt, R. G. Personality and organization theory: A review of some conceptual literature. Psychological Bulletin, 1971, 76, 271-294.

Likert, R. New patterns of management. New York: McGraw-Hill, 1961.

Likert, R. The human organization: Its management and value. New York: McGraw-Hill, 1967.

Litwak, E. Models of bureaucracy which permit conflict. American Journal of Sociology, 1961, 67, 177-184.

Litwin, G. H. Climate and behavior theory. In R. Tagiuri & G. H. Litwin (Eds.), Organizational climate: Explorations of a concept. Boston: Harvard University, 1968.

Litwin, G. H., & Stringer, R. A. Motivation and organizational climate. Boston: Harvard Business School, 1968.

MacCorquodale, K., & Meehl, P. E. On a distinction between hypothetical constructs and intervening variables. Psychological Review, 1948, 55, 95-107.

Maier, N. R. F. Psychology in industry. Boston: Houghton Mifflin, 1955.

Maier, N. R. F. Problem solving and creativity in individuals and groups. Belmont, California: Brooks Cole, 1970.

Maier, N. R. F., & Hoffman, L. R. Organization and creative problem-solving. Journal of Applied Psychology, 1961, 41, 277-280.

March, J. G., & Simon, H. A. Organizations. New York: Wiley, 1958.

McGregor, D. Getting effective leadership in the industrial organization. Advanced Management, 1944, 9, 148-153.

McGregor, D. The human side of enterprise. New York: McGraw-Hill, 1960.

McMurry, R. N. The case for benevolent autocracy. Harvard Business Review, 1958, 36, 82-90.

McNemar, Q. Psychological statistics (3rd ed.). New York: Wiley, 1962.

Merton, R. K. Bureaucratic structure and personality. Social Forces, 1940, 18, 560-568.

Merton, R. K. Social theory and social structure. Glencoe, Illinois: Free Press, 1957.

Meyer, H. H. Achievement motivation and industrial climates. In R. Tagiuri & G. H. Litwin (Eds.), Organizational climate: Explorations of a concept. Boston: Harvard University, 1968.

Michael, J. A. High school climates and plans for entering college. Public Opinion Quarterly, 1961, 25, 585-595.

Miller, N. E. The effect of group size on decision-making discussions. Unpublished doctoral dissertation, University of Michigan, 1951.

Morse, N., & Reimer, E. The experimental change of a major organizational variable. Journal of Abnormal and Social Psychology, 1956, 52, 120-129.

Mouzellis, N. P. Organisation and bureaucracy: An analysis of modern theories. Chicago, Illinois: Aldine, 1967.

Mulder, M. Threat, attraction to the group and need for strong leadership, a laboratory experiment in a natural setting. Human Relations, 1963, 16, 317-334.

Murray, H. A. Explorations in personality. New York: Oxford University, 1938.

Nie, N., Bent, D. H., & Hull, C. H. SPSS: Statistical package for the social sciences. New York: McGraw-Hill, 1970.

Nunnally, J. C. Psychometric theory. New York: McGraw-Hill, 1967.

Pace, C. R. College and university environment scales: Technical manual. Princeton, New Jersey: Educational Testing Service, 1963.

Pace, C. R. The measurement of college environments. In R. Tagiuri & G. H. Litwin (Eds.), Organizational climate: Explorations of a concept. Boston: Harvard University, 1968.

Palmer, G. J. Test of a theory of leadership and organization behavior with management gaming. (Second Annual Report, Contract 1575(05), Office of Naval Research) Louisiana State University, 1961.

Parsons, T. Suggestions for a sociological approach to the theory of organizations. Administrative Science Quarterly, 1956, 1, 225-239.

Peltz, D. C., & Andrews, F. M. Scientists in organizations: Productive climates for research and development. New York: Wiley, 1966.

Perrow, C. Organizational prestige: Some functions and dysfunctions. American Journal of Sociology, 1961, 66, 335-341.

Pervin, L. A. A twenty-college study of student + college interaction using TAPE(transactional analysis of personality and environment): Rationale reliability, and validity. Journal of Educational Psychology, 1967, 58, 290-302.

Pervin, L. A. Performance and satisfaction as a function of individual-environment fit. Psychological Bulletin, 1968, 69, 56-68.

Polis, T. A. A note on crisis and leadership. Australian Journal of Psychology, 1964, 16, 57-61.

Porter, L. W. Where is the organization man? Harvard Business Review, 1963, 41, 53-61.

Porter, L. W., & Lawler, E. E. Properties of organization structure in relation to job attitudes and job behavior. Psychological Bulletin, 1965, 64, 23-51.

Prien, E. P., & Ronan, W. W. An analysis of organizational characteristics. Organizational Behavior and Human Performance, 1971, 6, 215-234.

Pugh, D. S., Hickson, D. J., Hinings, C. R., & Turner, C. Dimensions of organization structure. Administrative Science Quarterly, 1968, 13, 65-105.

Roby, T. B., Nicol, E. H., & Farrell, F. M. Group problem solving under two types of executive structure. Journal of Abnormal and Social Psychology, 1963, 67, 550-556.

Rogers, C. R. Towards a theory of creativity. Etc., 1954, 4, 249-260.

Rosenbaum, L. L., & Rosenbaum, W. B. Morale and productivity consequences of group leadership style, stress, and type of task. Journal of Applied Psychology, 1971, 55, 343-348.

Ross, I., & Zander, A. Need satisfactions and employee turnover. Personnel Psychology, 1957, 10, 327-338.

Runyon, K. E. Some interactions between personality variables and management styles. Journal of Applied Psychology, 1973, 57, 288-294.

Sanford, N. The approach of The authoritarian personality. In J. L. McCary (Ed.), Psychology of personality. New York: Logos, 1956.

Schein, E. H. Organizational psychology. Englewood Cliffs, New Jersey: Prentice-Hall, 1965.

Schneider, B. Organizational climate: Individual preferences and organizational realities. Journal of Applied Psychology, 1972, 56, 211-217.

Schneider, B. The perception of organizational climate: The customer's view. Journal of Applied Psychology, 1973, 57, 248-256.

Schneider, B., & Bartlett, C. J. Individual differences and organizational climate. The Industrial Psychologist, 1969, 7, 27-33.

Schneider, B., & Bartlett, C. J. Individual differences and organizational climate: II. Measurement of organizational climate by the multi-trait, multi-rater matrix. Personnel Psychology, 1970, 23, 493-512.

Schneider, B., & Hall, D. T. Toward specifying the concept of work climate: A study of Roman Catholic diocesan priests. Journal of Applied Psychology, 1972, 56, 447-455.

Scott, F. G. Action theory and research in social organization. American Journal of Sociology, 1959, 64, 386-395.

Scott, W. R. Field methods in the study of organizations. In J. G. March (Ed.), Handbook of organizations. Chicago, Illinois: Rand, McNally, 1965.

Seashore, S. E., & Bowers, D. G. Changing the structure and functioning of an organization. Ann Arbor, Michigan: Institute for Social Research, 1963.

Seashore, S. E., Indik, B., & Georgeopoulos, B. Relationships among criteria of job performance. Journal of Applied Psychology, 1960, 44, 195-204.

Sells, S. B. An approach to the nature of organizational climate. In R. Tagiuri & G. H. Litwin (Eds.), Organizational climate: Explorations of a concept. Boston: Harvard University, 1968.

Shaw, M. E. Communication networks. In L. Berkowitz (Ed.), Advances in experimental psychology. Vol. 1. New York: Academic, 1964.

Shepard, H. A. Superiors and subordinates in research. Journal of Business, 1956, 29, 261-267.

Shepard, H. A. Organic and mechanistic models of organization. Paper presented at ESSO Laboratories, Thayer Hotel, Summer, 1959.

Simon, H. A. The new science of management decision. New York: Harper & Row, 1960.

Simpson, R. L. Vertical and horizontal communication in organization. Administrative Science Quarterly, 1959, 4, 188-196.

Skager, R., Holland, J. L., & Braskamp, L. A. Changes in self ratings and life goals among students at colleges with different characteristics. (Research Report No. 14) Iowa City, Iowa: American College Testing Program, 1966.

Skinner, B. F. Beyond freedom and dignity. New York: Bantam, 1971.

Stanton, E. S. Company policies and supervisors' attitude toward supervision. Journal of Applied Psychology, 1960, 44, 22-26.

Stern, G. G. Environments for learning. In N. Stanford (Ed.), The American college. New York: Wiley, 1962.

Tagiuri, R. The concept of organizational climate. In R. Tagiuri & G. H. Litwin (Eds.), Organizational climate: Explorations of a concept. Boston: Harvard University, 1968. (a)

Tagiuri, R. Executive climate. In R. Tagiuri & G. H. Litwin (Eds.), Organizational climate: Explorations of a concept. Boston: Harvard University, 1968. (b)

Thomas, E. J. Role conceptions and organizational size. American Sociological Review, 1959, 24, 30-37.

Thomas, E. J., & Fink, C. F. Effects of group size. Psychological Bulletin, 1963, 60, 371-384.

Thompson, J. S., & Hawkes, R. W. Disaster, community organization and administrative process. Unpublished manuscript, University of Pittsburg, 1962.

Thurstone, L. L. Multiple factor analysis. Chicago, Illinois: University of Chicago, 1947.

Triandis, H. C. Notes on the design of organizations. In J. D. Thompson (Ed.), Approaches to organization design. Pittsburg, Pennsylvania: University of Pittsburg, 1966.

Turner, M. B. Psychology and the philosophy of science. New York: Appleton-Century-Crofts, 1968.

Vroom, V. H. Some personality determinants of the effects of participation. Journal of Abnormal and Social Psychology, 1959, 59, 322-327.

Vroom, V. H. Some personality determinants of the effects of participation. Englewood Cliffs, New Jersey: Prentice-Hall, 1960.

Vroom, V. H. Work and motivation. New York: Wiley, 1964.

Vroom, V. H., & Mann, F. C. Leader authoritarianism and employee attitudes. Personnel Psychology, 1960, 13, 125-140.

Vroom, V. H., & Yetton, P. W. Technical report #1: Toward a normative model of leadership style. (Office of Naval Research, Organizational Effectiveness Research Programs, I.D. No. NR-177-935) Carnegie-Mellon University, 1972. (a)

Vroom, V. H., & Yetton, P. W. Technical report #2: Some descriptive studies of participation in decision-making. (Office of Naval Research, Organizational Effectiveness Research Programs, I.D. No. NR-177-935) Carnegie-Mellon University, 1972. (b)

Walker, C. R., & Guest, R. H. The man on the assembly line. Boston: Harvard University, 1952.

Weick, K. Experimentation in translevel interaction. In B. P. Indik (Ed.), People, groups, and organizations. New York: Teachers College, 1968.

White, R., & Lippitt, R. Leader behavior and member reaction in three "social climates." In D. Cartwright & A. Zander (Eds.), Group dynamics: Research and theory. New York: Harper & Row, 1968, Chapter 25.

Whitehead, A. N. Science and the modern world. New York: Free Press, 1967. (Originally published: Macmillan, 1925).

Woodward, J. Industrial organization: Theory and practice. London: Oxford University, 1965.

Worthy, J. C. Organizational structure and employee morale. American Sociological Review, 1950, 15, 169-179.